

NAVAL WAR COLLEGE REVIEW

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NAVAL WAR COLLEGE REVIEW

The *Naval War College Review* was established in 1948 by the Chief of Naval Personnel in order that officers of the Navy and Marine Corps might receive some of the educational benefits available to the resident students at the Naval War College. The forthright and candid views of the authors are presented for the professional education of the readers. Articles published are related to the academic and professional activities of the Naval War College. They are drawn from a wide variety of sources in order to inform, to stimulate, and to challenge the readers, and to serve as a catalyst for new ideas. Articles are selected primarily on the basis of their intellectual and literary merits, usefulness and interest to servicewide readership, and timeliness. Reproduction of an article published in the *Review* requires the approval of the Editor. Caution should be exercised in the case of those articles protected by copyright as the reproduction of such articles is subject to the Copyright Act of 1976 and treaties of the United States, to the extent that they are applicable. *Review* content is open to citation and other reference, in accordance with accepted academic research methods. The thoughts and opinions expressed in this publication are those of the authors and are not necessarily those of the Navy Department or the Naval War College.

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Rear Admiral John A. Baldwin, U. S. Navy
President, Naval War College

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Our cover: Three A-6E Intruders of VA-145, flying out of NAS Whidbey Island, Washington. Photo by Richard Breunig, courtesy of *Horizons Magazine*, Grumman Aerospace Corporation.

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President's Notes

Professor Robert S. Wood, Dean of the Center for Naval Warfare Studies, was invited by Senator Sam Nunn early this year to testify before the Senate Armed Services Committee on the general subject of strategy development. I have asked the *Naval War College Review* to publish his statement as the lead article in this issue because I think that Professor Wood has captured the essence of much of the work of the Naval War College. Most importantly, he has related that work to the broad concepts of strategy and the task of relating those concepts to force planning and operations. His broad approach and deep understanding of the issues give us an enduring basis upon which to discuss national issues of strategy as well as to understand the role of the College in articulating the maritime aspects of national strategy.

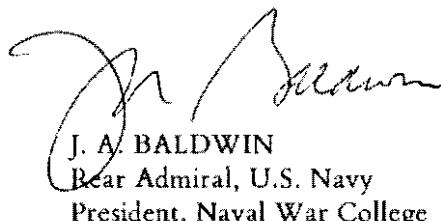
The portion of his paper titled "Introduction" was his oral statement made to support the prepared text that follows. The two statements are complementary; the oral part is a broad-based discussion that naturally flows into the second portion—his concept of strategy and the College's prepared discussion on the Naval War College and strategic development.

In Dr. Wood's testimony, one salient comment stands out. In pointing out the need to consider a variety of operational alternatives and campaign options as the very essence of readiness, he stated, "It is a mistake to confuse the development and testing of various campaign plans with the forward national strategy that they are designed to implement. The ability to remain

forward in peacetime and to prevail in wartime requires that we exercise a wide range of operations. So often this is portrayed as preparing for war in some offensive or provocative sense. Thinking—and practicing—the unthinkable—and the difficult—should be the job of our military commanders and is the most effective assurance of peace and the most certain guarantee that we will not be fixed by one set of assumptions and one set of responses. The strength of deterrence and the key to successful war termination depend on avoiding the unpreparedness of 1941 and the rigidities of 1914."

Turning to the subject of the Naval War College, he underscores a basic premise for the founding of the College which is as valid today as it was a century ago. "Some have criticized the American military officer," he writes, "for being more engineering than military minded—a technician rather than a student of war. We believe this criticism is unfounded. The very essence and purpose of the College is the same today as when Admiral Luce founded it: that is, 'to ensure that officers, not their equipment, are the controlling factors in war.' "

I invite all who have an interest in the process of strategic development to read this article carefully.



J. A. BALDWIN
Rear Admiral, U.S. Navy
President, Naval War College

The Conceptual Framework for Strategic Development at the Naval War College

Robert S. Wood

Introduction

Stategy, in its broadest terms, involves more than the threat or application of force. It entails an interlinked set of concepts through which we seek to relate ends to means. It reflects all of those interests, values, assumptions, principles, and guides to action that go under the name of policy. Moreover, it is important to understand that international conflicts of interest are endemic, and we cannot divide time into periods of peace and periods of war. The spectrum of conflict is continuous, and any point on the spectrum requires that we bring to bear the relevant panoply of national capabilities from psychological to economic to cultural to military.

It is also patent that any national strategy must harmonize with the strategic culture of the people it seeks to serve. By strategic culture, I refer to generally shared attitudes in the society concerning the nature and requirements of external security, the conditions of peace, the causes of war, and the utility and restrictions on force. Here I would underline two aspects of the strategic culture that bear directly on U.S. strategy development. One bears upon problems of intelligence and expectations, and the other bears upon problems of implementation.

The first aspect of our strategic culture that I would signal is the tendency to project into the international sphere attitudes derived, first, from our domestic situation and, second, from our peculiar historical security environment. On the domestic side, for over a century our national agenda has focused less on constitutional issues—that is, the structure and limitations of political power—than on bargaining issues, that is, the distribution of benefits within that system. Furthermore, we have pursued our national

Dr. Wood is the Chester W. Nimitz Professor of National Security Affairs at the Naval War College and serves as Dean of the Center for Naval Warfare Studies as well as Special Academic Advisor to the President, Naval War College. This is the text of his statements before the Senate Armed Services Committee on 13 January 1987.

politics in an environment of remarkable prosperity. In the external world, on the contrary, many states are struggling to answer the most fundamental questions of who rules, under what restrictions, and how power is transferred—and this is being played out under conditions of much greater scarcity than we have experienced.

Secondly, our historical external security position has been rare for a great power. One observer stated it well—weak neighbor to the north, weak neighbor to the south. Fish to the east, fish to the west! Most other states have been shaped by different historical imperatives and have thus been more conscious of the tenuousness of their national existence. As a result of our background and experiences, we interpret threats and offer political solutions that at times seem to underestimate the deadliness of many struggles in the world and to overestimate the possibility of political or negotiated settlements.

A second problem in our strategic culture concerns our unwillingness in peacetime to take war seriously enough. Obviously, we spend billions on defense, raise and exercise forces, and devise plans. But the key aspects of war—and perhaps of international conflict generally—are uncertainty, risk, and probabilities. The conditions of deterrence and the requirements of victory are dependent on time, space, and circumstances. A single strategic option, a fixation on one region or theater, and a limited range of options may meet the desire to limit expenditures and to be as nonprovocative as possible. But, if we have a gut feeling that the maintenance of deterrence requires that we pose a range of threats to our enemies and that the flow of conflict is inherently uncertain—if we sense this, then we need to insist on a much broader range of contingency planning, operational options, and military exercises.

To be effective, strategy must not only link, in some general sense, resources to ends, but it must also provide the conceptual basis for developing and exercising a variety of operations or campaign options.

Two major geopolitical facts shape our foreign policy and our strategy. The first is that many of our friends and interests lie on the periphery of a great Eurasian empire, a vast militarized bureaucracy possessing interior lines of communication. The second is that the classic extra-European empires have collapsed since World War II and the globe has fragmented into a large number of states claiming independence and a large number of political movements claiming states. Many of those new states, regimes, and movements are economically underdeveloped, weak in political legitimacy, and insecure on their boundaries—and are often important either in terms of resources, location, population, or power potential. In a generalized sense, these systemic factors have dictated a foreign policy animated by a desire, first, to prevent the U.S.S.R. from converting its superior interior position into direct or indirect domination of its immediate neighbors and, second, to

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minimize the threats that an interdependent world of weak regimes and antagonistic movements might present to our interest in a peaceful, interlinked global economy and stable political regimes responsive to the peaceful development of their peoples and resistant to external manipulation by our principal adversary.

Strategically, these interests have been translated into concepts of forward deployment of U.S. forces, coalition defense, extended nuclear deterrence, and flexible response. But, as I have indicated, to be effective, strategy must go considerably beyond these generalized concepts.

A credible deterrent posture and a recognized ability to shape the international environment and, if necessary, to employ force, require an array of operational alternatives and campaign options sensitive to different situations and dynamic change. A powerful forward strategy demands we develop contingency plans that link the entire range of American and Allied Powers, not simply military; further, that we articulate military-political options that allow us to think through possible sequences of actions and reactions in what, in military parlance, one might call theaters of operation. The world will never go according to plan; therefore, we need to test and exercise a variety of alternative plans. This is the essence of readiness.

It is a mistake to confuse the development and testing of various campaign plans with the forward national strategy that they are designed to implement. The ability to remain forward in peacetime and to prevail in wartime requires that we exercise a wide range of operations. So often this is portrayed as preparing for war in some offensive or provocative sense. Thinking and practicing—the unthinkable—the difficult—should be the job of our military commanders and is the most effective assurance of peace and the most certain guarantee that we will not be fixed by one set of assumptions and one set of responses. The strength of deterrence and the key to successful war termination depend on avoiding the unpreparedness of 1941 and the rigidities of 1914.

In developing our national strategy we should avoid tendencies both to see the world in our own image, and to defer serious contingency and campaign planning within and across theaters of operation until the crisis is upon us.

Concept of Strategy

Military strategy at its most basic is a plan of action relating military assets to political objectives. It is a set of interrelated concepts about the *employment of force* under specified *circumstances* and for specified *ends*. The adequacy of a strategy thus depends on its ability to guide the acquisition, structuring, and use of force to achieve—in concert with other elements of national power—a state's objectives.

Brilliant strategy may allow a state to defeat an enemy that possesses superior military strength and even shift to a more advantageous theater of combat. It is nonetheless dangerous to underestimate the strategic intellect of one's enemies and to ignore the relative intractability of geopolitical factors.

All strategies are fiscally constrained because resources are always limited relative to a wide variety of demands. But a politically-defined budgetary ceiling that delimits the level of national sacrifice without a clear appreciation of national interests, threats, and international circumstances is defective at the outset.

All of the above are truisms but ones which, as Winston Churchill noted, democracies appear to forget on an alarmingly regular basis. A call for a better articulated national military strategy should never, therefore, be a demand simply to do the same or more with fewer resources. It must include a realistic assessment of our interests, our geopolitical posture and historical role, the nature of enemies and friends alike, and the character of contemporary international politics.

Strategy, then, is a military plan of action designed to achieve policy objectives and to meet the threats and seize the opportunities identified by policy. Ideally, this military plan of action will not only flow from policy but will be consistent with the diplomatic, economic, and other plans of action also designed to serve policy. If military strategy links forces with ends, it must also provide the conceptual basis not only for raising and organizing forces but for developing and exercising a variety of operational or campaign options. Strategy must be executed at a particular time, in a particular place, and under particular circumstances. The translation of strategic concepts into force deployments and employments in time, space, and circumstances constitutes military operations and campaigns. Campaigns are a connected series of military operations to attain the results defined by political judgment and the strategic concept. Campaign plans, in effect, provide the guidance for a battle force commander to reach the strategic objective. As campaign plans are developed and exercised, strategic concepts may in turn be refined or even altered to take into account operational experience. On occasion, even policy presuppositions are modified.

Needless to say, the actual relationship among policy, strategy, and campaign options is never this tidy. Nonetheless, however confused the process, these distinctions are real and a necessary condition for differentiating the hierarchy of containment policy, the national strategy, and specific campaigns and operations. In assessing plans and exercises for military operations anywhere, it is thus helpful to state the political-military assumptions and the strategic concepts underpinning those operations. The basic contours of U.S. policy and strategy, however, are really fairly clear. What is not so clear, and is often confused with our fundamental policy and strategy, is the range of appropriate operational options.

A large number of U.S. interests and friends cannot be reached by "walking" to them. We must cross vast areas of water and air. Unfortunately for us, those same interests and friends lie on the periphery of the greatest Eurasian empire in history, a vast militarized bureaucracy possessing interior lines of communications. At the same time, there has emerged in the former colonial areas a host of new or renewed states, many economically underdeveloped, weak in political legitimacy, and insecure on their borders. Finally, the United States has acquired a nuclear force capable of delivering a devastating blow to any would-be enemy that might strike directly at the United States.

All of these factors make fairly clear the contours of U.S. policy—and strategy. The objectives are to prevent the U.S.S.R. from converting its superior interior position into direct or indirect domination of its immediate neighbors and to maneuver in a chaotic Third World environment so as to protect one's material interests and to minimize alignments between states and movements in those areas and our principal adversary. In sum, we are pursuing in modern guise the classic role of a "regulatory state" seeking to construct and maintain the central balance while advancing its interests in a fragmented world. Coalition building, aid and trade programs, arms sales, periodic interventions or punitive strikes, counterbalancing regional adversaries—these policies of containment and power management, while relatively new to the United States, are not without substantial historical antecedents.

The principal military issue associated with this geopolitical posture is how to project military power across the whole spectrum of conflict in a technological and political environment that increases the cost of using military force. And, of course, all of this must be related, on the one hand, to a grand strategy that includes economic, diplomatic and other instruments of national power and, on the other hand, to restraints on the percentage of national resources that we are willing to devote to these international missions.

It is at this point that controversy generally breaks out. Given limited resources, what type of force structure will allow us to sustain our forward strategy from "peacetime" management of power to deterrence, to general war? And, secondly, what sort of operational options should we develop to sustain our interests across a number of regions and conditions? And, yet, if intellectually one has made the trek from our geopolitical posture through our general policy and strategy, we can at least focus the debate and delimit the choices. Unfortunately, we too often talk programs and specific operations without having made the journey. If political and military leaders are to exercise effectively their role in national strategy, it is at this level of *macromanagement* where genuine dialogue can be shaped within the government, and programmatic choices can be framed.

The Naval War College and Strategic Development

The mission of the Naval War College is to lead, through a rigorous course of study, senior officers and federal executives along this intellectual journey—to educate them in matters of military strategy, resource allocation, and combined and joint operations. This includes the theory, strategy, doctrine, planning, coordination, and direction of the military force available to a commander.

There are currently about 400 U.S. and international officers in residence at the College. They are all successful professionals who have proven their ability in the past, and who will be counted on in the future to be the leaders of their profession. This is true not only of our U.S. Navy, Army, Air Force and Marine Corps officers but also of the 61 international officers in residence.

Officers in Residence: 396

USN	45%
USA	17%
USAF	6%
USMC	13%
USCG/Civilian	4%
International	15%

Just as the number of officers attending the College has grown, the faculty has expanded to include officers from all services as well as an impressive group of civilians with solid academic reputations in their respective disciplines. This mix has enhanced the joint framework of the War College education. Every seminar in every subject includes an interchange among all the services represented and their civilian peers. Moreover, there is a close and continuing dialogue between all the War Colleges on matters of common interest.

Faculty Members: 86

USN	34%
Civilian	34%
USA	10%
USAF	10%
USMC/USCG	12%

The Naval War College thus provides a place where officers are afforded an opportunity to live together, to read books, to think independently, to test their views against others in and out of uniform and to participate in disciplined and rigorous inquiries that deepen their knowledge of their profession. The job of the faculty is to direct and focus these officers in their endeavors rather than familiarize them with masses of factual material.

Strategy and Policy. One of the College's goals is to teach its graduates to think strategically. Their study of strategy and policy examines the relationship between a nation's political interests and goals, on the one hand, and the way military force may be employed to serve those interests and goals on the other. Its application involves a process in which the officer must first create a description of what occurred, then analyze it, compare and contrast it to some fundamental concepts, examine it in relation to other similar and dissimilar experiences, and refine the fundamental ideas with the generalizations which emerge. These are the themes that are the basic underpinnings of our examination of strategy and policy. They are common to all nations that use military force to further political objectives.

Fundamental Themes

- o Military Means and Political Ends
- o Force Coordination and Strategic Execution
- o Non-military Means and Political Objectives
- o Strategic Theories and Military Capacity
- o Military Advice
- o Domestic Factors and Technology
- o Alliances
- o The International Environment

Our goal is to give our officers the mental tools for evaluating current strategy and for formulating new strategies—for understanding what conditions should be satisfied in order to have a national or regional strategy which supports and achieves our nation's political objectives—and for distinguishing good strategy from the kind which is simply a capability in search of a mission.

During their year in Newport, the officers examine several historical case studies as part of their study of strategy and policy. Collectively, these cases and others like them bring into vivid relief the themes previously mentioned. Moreover, the nature of these cases is such that the officers must apply a national as well as an alliance perspective in their analyses. Discussion of these wars enhances their capacity for flexible, dispassionate thinking. Moreover, it also fosters the development of broad-gauged officers who are knowledgeable in the history of their profession and its role in the world, and who understand that the past has a great deal to teach every profession.

Selected Strategy and Policy Cases/Issues

Theory and Prototype:

- o Athens versus Sparta

- o The Second Punic War
- o A Revolutionary Era: Europe 1789-1815

The Modern Security Environment:

- o The Age of Nationalism: Europe 1815-1890
- o Total War: World War I
- o World War II and Coalition Strategy

Contemporary Use of Force:

- o The Cold War and Korea
- o Modern Revolutionary War: Algeria
- o Grenada and Lebanon

National Security Decisionmaking. Another major focus of study is joint forces planning. Its objective is to develop and apply a comprehensive framework for planning future forces. Officers integrate the many and sometimes competing variables involved in planning, selecting, and obtaining these forces and their necessary support. As in our other areas of study, the College examines the full spectrum of conflict from strategic nuclear war to terrorism and considers the resulting force implications. Throughout, we approach our planning cases from an integrated joint and allied perspective. We have always considered this comprehensive approach mandatory since our national strategy, with its emphasis on coalition warfighting, requires that we look at both the complementary and competing U.S. and allied perspectives on a worldwide basis and then study specific theaters and potential campaigns to identify combined and joint force requirements, deficiencies, problems and alternatives.

Force Planning

- o Framework for Planning Joint Forces
- o Spectrum of Conflict
- o Joint and Combined
- o Objectives, Strategy, Forces, Threat, Risk
- o Limited Resources
- o National Security Command Structure
- o Case Method

We require that our officers approach force planning in the spirit of recognizing that America's defense effort requires a close relationship between our military strategy and the force structure we select to carry out that strategy. We emphasize that our defense strategy must be anchored firmly in our national security objectives, and our force structure decisions must stem directly from this strategy. The College reinforces the key variables of objectives, strategy, forces, threat and risk. A major

consideration is the proper and explicit selection of objectives to ensure they are not vague, misdirected, overly ambitious, or incomplete.

Our approach is to use extensive current cases to place the officers as closely as possible into the environment of a senior decisionmaker or as a principal staff officer to a senior decisionmaker. As part of this study, officers study all major strategic nuclear force modernization decisions and alternatives from the beginning of this administration to the current strategic defense initiatives. In addition to those displayed, we emphasize the force planning issues in the European theater such as theater nuclear forces, chemical forces, conventional force modernization, and follow-on-forces-attack. We also examine the other theaters to ensure a global perspective, as well as to consider specific regional contingency requirements.

Selected Force Planning Cases/Issues

Force Planning Cases:

- o Strategic Nuclear
- o NATO and Warsaw Pact
- o Contingencies

National Security Command Structure:

- o Grenada/Lebanon/Terrorism
- o Defense Reorganization
- o Command of Special Operations Forces
- o Technology Transfer

Defense Resource Board Simulation:

- o USN and USAF TACAIR
- o Close-Air Support
- o Army Combat Support/Combat Service Support

When studying the national security command structure, we candidly assess its strengths and weaknesses. We have extensively researched and written original cases on our operations in Grenada and Lebanon. We also look realistically at the major alternatives that have been proposed for defense and JCS reorganization. Other cases consider development of a U.S. response to terrorism, command of special operations forces, and development of a technology transfer policy.

Our focus on planning forces concludes with a simulation of the Defense Resources Board's use of selected, actual issues and papers. Officers are placed in either the role of a member of the board or a principal presenter to the board. In addition to those mentioned here, the officers have also considered such issues as the Army POM and the F-16/F-20 competition.

Operations. A third major focus is to prepare senior-level military officers for major command and senior staff assignments. We believe that senior-level professionals will be required to make increasing use of many military disciplines as they deal with joint operational problems and changing circumstances that will confront them in the future. The College employs a multidisciplined approach to warfighting. Officers wrestle with national military strategy and its maritime elements, joint and service doctrines, military decisionmaking, operational planning, the principles of military warfare, threat assessment, and war gaming techniques, among others.

Joint Military Operations

- o The Theater Level of War
- o Military and Maritime Strategies
- o Strategy, Campaign and Joint Operations Linkage
- o Integrating Air, Land and Sea Forces in Joint Ops
- o Elements of Military Decisionmaking
- o Warfighting Capabilities and Limitations
- o War Gaming as a Decisionmaking Tool

The focus is on the theater commanders, their subordinates and their senior staff officers. These are the integrating concepts. We place the officers in situations that force them to consider how the operational commander sees, shapes, fights, and sustains theater level campaigns and battles. The College highlights the commander's problem of organizing and coordinating separate service assets in a campaign. In sum, the College wants its graduates to be able to advise a commander how to organize and employ the total force within a theater to make a strategic difference.

In terms of the operational issues and cases that the College has used, we emphasize capabilities and limitations of forces and types of warfare.

Joint Military Operations Selected Issues/Cases

- o National Military Strategy
- o Maritime Strategy
- o Air-Land Battle
- o Forward Defense
- o Aerospace Doctrine
- o Strategic Mobility
- o Terrorism
- o Space
- o Unified Command Plan
- o War Termination
- o Joint Operational Planning

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Cases and war games highlight strategic concepts, joint and service doctrine, sensor and weapon capabilities, and the functions and tasks of today's forces. We use the planning logic of the commander's estimate of the situation—a logic that identifies the alternatives available to one's enemy as a key variable in a military situation. Rules of engagement and limited intelligence are among the considerations that the officers must factor into their operational planning. We require them to make difficult decisions in a timely manner, in the face of uncertainty, in complex, joint operational simulations.

The officers play two major war games. One is a superpower confrontation in which they assume the roles of theater commanders and their principal subordinates. The second game focuses on a crisis within a theater with the officers assuming senior military and civilian roles. They consider how to employ forces under their command to assist the National Command Authority in resolving the crisis favorably. Throughout, we emphasize that the officers must use current forces to solve these operational problems.

Research and Gaming. As a first-rate graduate level institution, the College sponsors an extensive research program which focuses on strategy and campaign development, planning, war gaming and other advanced research.

Each summer the Naval War College conducts the largest and most comprehensive war game in the Western alliance. It is a three-week, multiservice endeavor by hundreds of officers and senior civilian officials; it simulates the course of air, ground and naval warfare in all theaters and conflict in space. It stresses interservice operations, rather than only those in the maritime realm. We believe that the scope of flag and general officer participation attests to this last point.

Global War Game Flag and General Officer Participation

USN	32
USA	13
USAF	20
USMC	18

Additionally:

- 2 Career Ambassadors
- 4 Royal Navy Flag Officers

The game's purpose is to gain insights into the nature of a global war between the West and the Soviet Union; insights related to strategy, to objectives and bargaining, to campaigns, to tactics, and to weapons systems.

Global War Game Series

Objectives:

- o Strategic Concepts for Joint/Combined Land/Air/Maritime Campaigns

- o Theater Priorities for Combined Operations
- o Effects of Blue Strategies on Red Decisionmaking
- o Diplomatic Initiatives Supporting National Strategies
- o Logistics
- o The Nuclear Threshold
- o Application of Advanced Technology to Tactics

There has been a sharp learning curve over the course of the games and in each new simulation we build on what we have learned, while not ordering the players to follow any preconceived script. It is an interactive, free-play game in which the Red and Blue military and National Command Authorities may use their conventional and nuclear forces as they wish. The forces and logistics of each side are based on the best available intelligence, while combat results are assessed by an experienced team of umpires using the most modern assessment techniques available.

The issues that arise from the play of the Global Game, as well as other games, are a source of research topics for the officers attending the College as well as the faculty. Last year, two Army research fellows reported aboard for a two-year stint that will extend over three Global War Games. They have already contributed significantly to Army participation in the Global Game. Their job at Newport is to focus on improving cooperation between the Army and Navy in joint combat operations and campaign planning. This program will facilitate long-term interservice continuity in the research program. The Air Force is considering a similar program. It already has an officer assigned to our War Gaming Department.

Other games as well as the scope of the College's Advanced Research Program sustain the joint context of our studies and provide insights to senior commanders and political leaders.

Selected War Games

Project	Sponsor
Blade Parallel	USC/INCSOUTH
Drug Interdiction	COMDT, USCG
Live Oak	SACEUR
Inter-American 86	Naval War Colleges of the Americas
JLASS	NWC/AWC/AFWC/NDU
MNC Force Requirements	SACLANT

Advanced Research

Project	Participants
Northern Flank Combined Air Campaign	USN/USAF/USMC
AWACS Support of Maritime Ops	USN/USAF
Fourth Generation Soviet Aircraft	USN/USAF
Special Operations—A Framework for Change	USA
Strategic Airlift Requirements	USAF/USMC

In sum, the Naval War College offers a credible educational program in the higher direction of war. The College believes that its graduates must understand the realities of national power and military force and how best to integrate our Nation's military capabilities to assist in reshaping the strategic environment. While they are grappling with the issue of how to fight smart together today, they gain an appreciation of the value of long-term vision and consistency stemming from national interests and objectives. While War College research and games directly help the national political and military leadership define issues and assess alternatives, the most important product remains the officer-student who will, through the course of his career, apply the analytical rigor and strategic sensitivity gained in Newport.

Some have criticized the American military officer for being more engineering than military minded—a technician rather than a student and practitioner of war. We believe this criticism is unfounded. The very essence and purpose of the College is the same today as when Admiral Luce founded it: that is "to ensure that officers, not their equipment, are the controlling factors in war."



Soviet Strategy: The Naval Dimension

C.G. Jacobsen

Geopolitics, the geographical fact of location in the heart of the Eurasian landmass and the political fact of contiguous threats and enemies, dictated that Moscow focus first and foremost on land power. Naval, and later air capabilities were developed to complement that power and to integrate with it, not to challenge or supplant it. During World War II, limited-reach naval and air elements acted as tactical adjuncts to land formations. Today the Soviet Union's more potent, part-global navy and newfound strategic airpower serve as integral components of the evolving combined-arms continental and supracontinental Theaters of Strategic Military Operations (TVDs).

The Soviet Navy in Historical Perspective

The emergence of expanding Soviet naval power in the 1960s has been likened to the buildup of the tsarist fleet after the Crimean War during which, typically, naval guns were used as land cannon and marines as infantry.¹ The analogy is useful. It reminds us that Russian seapower and presence in distant oceans is not novel, but a response to situations in which narrow reliance on land formations has proved dangerous and/or unduly restricting. It also reminds us that fiscal pressures and more urgent land priorities have, in the past, always aborted or at least reined in the aspirations of the admiralty. This pattern threatened "Gorshkov's Navy," too, in the late 1970s. Circumstance and naval perspicacity—in disavowing independent aspirations and adopting, molding, and pursuing the banner of combined arms—may now have broken the pattern and established a more enduring basis for Soviet naval power. We shall see.

The post-Crimean expansion typified traditional overreach. In the West, the Russian Navy placed major warship orders with French and U.S. Union

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shipyards, accepted an offer from Louis Napoleon and Cavour for a base at Villefrance in 1858, and sent naval squadrons to New York and San Francisco in 1863 to demonstrate support for the Union in the Civil War. In the East, the first independent squadron for the eastern ocean was formed; in 1861 the Russian fleet established a *de facto* base in the Tsushima Strait. But the Tsar was ultimately persuaded that the danger of provoking Austria-Hungary and Britain in the West, and of antagonizing Japan and British interests in the East, outweighed the advantage of overseas basing. The Villefrance and Tsushima initiatives were rescinded. However, the American venture did gain his approval as a response to the threat of British and French meddling in Poland. The principle that naval reach can be a useful instrument of power was affirmed. Also affirmed, however, was the dictum that it must not precipitate or commit power.

There was one other legacy. The fleet landing in Vladivostok Bay in 1860 prodded Chinese agreement to the Treaty of Peking, which ceded the territories east of the Ussuri. The navy scarcely benefited. The naval response to war with Japan in 1904 was to draw on the Baltic Fleet. Its attack on British North Sea fishing boats, mistaken for Japanese warships, nearly sparked another war, exposed abominable judgment, and foretold the odyssey's ignominious end.

The Spanish Civil War and Italy's blockade of Soviet sea-supplies to anti-Franco government forces spawned another naval revival. Stalin ordered the building of a fleet that could challenge Western command of the seas, but World War II loomed and other priorities intervened.

The Greek Civil War saw a repeat in 1948. Stalin acknowledged the effectiveness of the U.S. blockade and Soviet impotence. Again, he directed that Moscow build a high-seas fleet to protect distant interests and clients. Again, Moscow's ambition was thwarted, sidetracked by the demands of reconstruction, Stalin's death, the move towards a relaxation of East-West tensions, and subsequent domestic needs.

While some capital ships were procured, distant ambitions were put aside. But changing strategic realities brought new naval purpose. The nuclear threat from American carriers compelled emergence from coastal waters. The navy also was an early beneficiary of the search for a means of delivery for Soviet nuclear warheads. The 1950s brought nuclear-armed torpedoes and the pioneering deployment of limited-range missiles on submarines.

It was a harbinger of things to come. Yet, the moves were aborted in the late 1950s because of technical difficulties, problems of command and control, the need to traverse hostile seas, and most importantly, because of the advent of Intercontinental Ballistic Missiles (ICBMs), and Moscow's rather naive and euphoric assessment of their import.

ICBMs appeared, finally, to have given the Soviet Union a secure deterrent—a certain and devastating retaliatory capability. Moscow

embraced the thesis that contemporary war would be nuclear and would inevitably escalate to all-out cataclysm. Naval potentials appeared redundant, and like the cavalry, a relic of earlier times. However, to paraphrase Trotsky, the navy did not long remain on the dustbin of history. Nineteen hundred and sixty-one brought renewed purpose.

Geographic Constraints and Moscow's Response

Russian and Soviet naval power have also faced a continuing geographic challenge.² The Oresund exit from the Baltic, the old capital, and the naval-industrial heartland are easily blocked. The Dardanelles exit from the Black Sea southern industrial regions (to which much of the Baltic Fleet could redeploy through interconnecting canal and river systems) is also narrow, also easily blocked.

The degree of constraint felt and the compulsion to circumvent it was dramatized by World War I. The British-French promise that the Dardanelles would be hers kept Russia in World War I. Assaults in the East may well have saved the West, but doomed the Tsar. The liberal-conservative governments that succeeded him after February 1917 were equally dazzled by the lure. Again, Russia attacked, sucking German troops from the West at a crucial juncture and again, carnage doomed the regime. Bolshevik slogans propagandizing peace now, bread now, and all power to the then democratically elected Soviets, swept it away.

When naval expansion returned to the agenda, attention focused on the remaining alternatives, the Kola Peninsula in the far northwest and the Far East. Neither was ideal. Both lay far from the heartland, connected to it by a solitary exposed rail line. Although both promised improved access to open seas, neither allowed freedom from geographic constraints.

At its maximum extension, the Polar ice cap sweeps south of Svalbard, north of Norway, curves eastward paralleling the Kola coastline at a mean distance of 180 miles, and swings south to land-lock at Mys Svjatoy Nos, 240 nautical miles from the Norwegian border. In other words, ice forms the northern shore of a wide yet constricting fiord that funnels surface traffic to and from the Kola.

In the Far East, the maximum ice limit runs outside Kamchatka and the Kurils, down to Japan's northern Hokkaidō island, and then west, south of Sakhalin and across the mouth of Vladivostok Bay. Vladivostok averages 85 days of fog a year and freezes for three months. Sovetskaya Gavan, the Trans-Siberian railway's eastern terminal, across from Sakhalin island, is even more prone to fog and is icebound from December to March. Petropavlovsk, on the Kamchatka, is protected from winds and fog by volcanic mountain ranges, but freezes in December and remains frozen for three to four months. All can be kept open with icebreakers. The result,

however, is that surface traffic from all is restricted in winter. From Vladivostok, Sovetskaya Gavan and later-built bases along the Sea of Okhotsk's shores, surface traffic is furthermore funneled by the need to pass through relatively narrow and exposed straits in order to get by Japan and on to open waters.

The Barents was nearer. Its ports and infrastructure received a boost from World War II when Murmansk served as the gateway for Allied convoys. After the war, Finnish neutrality provided a protective buffer zone for the umbilical railway. The initial buildup of Soviet naval strategic potentials centered on Murmansk, and Kola's maze of fiords and natural harbors.

The main problem concerned the limited range of early submarine-launched missiles. Targeting of Americans demanded proximity to American shores. Exit into the Norwegian Sea was not then challenged. Soviet Naval Commander in Chief, Admiral of the Fleet Gorshkov, evinced little respect for the bottling-up capacity of NATO antisubmarine warfare efforts across the Greenland-Iceland-U.K. (GIUK) gap. But he respected the U.S. Navy's underwater acoustic listening systems (SOSUS) and the attrition probabilities associated with traverse through thousands of miles dominated by NATO surface, subsurface and air units.

Gorshkov ordered exploration of under-ice Arctic transit routes, and priority development of intercontinental-range Submarine-Launched Ballistic Missiles (SLBMs).³ By 1967 the Soviet Union had published tectonic (structural) maps of the Arctic Ocean floor, right up to Canada's northern islands, that were more accurate, with better discrimination than the best analogous Canadian maps of these islands' land surfaces.

The first intercontinental-range Delta SLBMs, arriving after 1972, promised relief from the need to transit. Missiles could be fired from the northern bastion, protected by concentrated surface elements and naval and land-based air cover. Pioneer Arctic expertise was subsequently incorporated into new hull and superstructure designs that allowed ballistic missile submarines to break through the ice cap. Adjacent Arctic regions became extensions of the home fortress.

The incorporation of Arctic expanses was forced by Norway's creeping integration into U.S. naval operational designs.

- Loran C navigational facilities in the early 1960s provided "fixed launch surveilling" for the Polaris;
- the subsequent installation of a SOSUS listening network off northern Norway furthered the trend;
- the 1970s and early 1980s brought pre-positioning for the U.S. Marine Corps, Colocated Operation Base agreements to prepare airfields to host U.S. Air Force squadrons, and the Invictus accord that allows U.S. carriers up to 100 fighter-bombers and other aircraft the use of Oerland airfield, north of Trondheim;

- peacetime training patterns routinized procedures intended for war or “crisis”;
- the strike and range potential of Norwegian access provided the crucial underpinning to the U.S. Navy’s 1980s ambition to penetrate into, and challenge Soviet control of the Barents;⁴
- the Norwegian anchor was complemented by a pattern of increasing U.S. attack submarine activity under the Polar ice.

The under-ice threat was manageable. The absence of a comprehensive Arctic SOSUS and supporting surface and air antisubmarine warfare components provided good survival odds for Soviet SLBMs, especially in view of their greater familiarity with Arctic conditions and phenomena. And core Norwegian facilities, first-priority targets—subject to preemption if fully employed—could be crippled.

Nevertheless, the trend towards greater exposure in the northwest may have contributed to the mid-late 1970s decision to develop a second “home bastion” for SLBMs in the Sea of Okhotsk—although the decision may merely have reflected the confluence of intercontinental range, a much improved maritime-industrial infrastructure, and the coming of the Baikal-Amur Mainline, the 2,000-mile northern spur to the Trans-Siberian rail line. The geography of the Okhotsk, which is extraordinarily favorable for that purpose, appeared to assure Soviet land-air dominance over at least its inner reaches. Multiple but narrow straits that constrain exit afforded ideal conditions for defence against entry. Some underwater penetration might occur, but shallow regions give peculiar advantage to Moscow’s new diesel-electric submarines. Supporting surface and carrier-air penetration is not likely.

The complementary development of the Northern Sea route proceeded apace. Ever-increasing icebreaker capabilities, both nuclear and conventional, gradually extended the season for surface navigation. Obvious civilian and commercial benefits dominated the official rationale. Yet military ramifications are evident. Submarines could transit before, but now surface warships can also redeploy under cover of land-airpower far more quickly than before and far quicker than American fleets.

Naval Buildup

The emergence of the new Soviet Navy dates from 1961.⁵ Disdained as a relic a few years before, it became, instead, crucial to the future. The transformation mirrored a more sober understanding of ICBMs. Experience, tests, and increasingly caustic U.S. appraisals (particularly scathing in 1961) revealed a whole series of problems covering missile design, reliability, accuracy, and command and control. Early fuels could not be stored aboard. It would take days to prepare them for firing. They were stationary, above ground, and extremely vulnerable.

The decision to put some to sea and to upgrade the navy was part of the response. Other elements of the drive for survivability and availability ranged from silo construction to experiments with mobile missiles, missile defense and space basing. Silo hardening constituted an uncertain race against improving accuracies; mobility, defense and space aspirations foundered against both technological and operational obstacles. The navy grew.

Its primary task was to insure Soviet strategic might. The Yankee nuclear theater-range ballistic missile submarine was developed. The strategic priority was reflected in efforts to insure its viability. The preparation of the Arctic transit option has been mentioned. It was also accompanied by an array of surface vessels designed to provide a protective antisubmarine warfare screen. The defensive strategic task of engaging carrier, and later Polaris nuclear threats was also reaffirmed. New classes of surface combatants with nuclear-tipped torpedoes and cruise missiles were procured. As numbers increased, exercises established a regular operating pattern in the Norwegian Sea, then extended the presumed engagement perimeter westward to beyond the GIUK gap. A Mediterranean squadron was established, and then a less permanent Indian Ocean squadron, and an intermittent Caribbean presence. By 1970 Moscow was able to stage its first truly global exercise, Okean.

The Soviet Union's oceanographic research and fishing fleets—the largest in the world—and the rapidly expanding merchant marine provided scientific, intelligence, and other support. The Soviet Navy acquired its own acoustic listening systems, though less advanced than America's. Satellites revolutionized navigation and over-the-horizon targeting prospects.

Distant power projection capabilities brought peacetime and low-intensity options. Naval squadrons were positioned to dissuade American intervention in Angola, Bangladesh and elsewhere. Fleet presence was employed to secure the release of Russian fishing trawlers in West Africa, to shore up morale in Havana, Tripoli and Mogadishu, and to help Vietnam resist and counter Chinese attack. The navy embraced the role of protector of State interests abroad, agent and defender of Soviet politico-economic initiatives in the Third World, and used its new mantle to press for a larger share of defense resources.

But again, the navy was in danger of overreaching. Its primary purpose was embodied in its design. The navy was then predominantly nuclear, one-shot, with little or no reload capability. It was designed in accordance with prevailing doctrine: war would be nuclear, sudden, cataclysmic. Its new ambitions suggested more general challenge for command of the seas, an infinitely more demanding task in terms of quantity and sustainability.

The mid-late 1970s navy could control home seas with a high degree of confidence; intercontinental-range missiles dispensed with the offensive requirement to extend domination and breakout support westward. More powerful cruisers with missiles that provided longer range and larger yields

against ship and air targets signaled greater potency against carrier task forces. In peacetime the navy could now support and protect clients, and to a limited degree, further overseas interests. The latter was a major accomplishment with profound international ramifications. Distant interventionary-type potential, however, was still marginal, effective only where U.S. interest was slight, or where the balance on the ground was particularly favorable as in Angola, Ethiopia and Vietnam.

But the climate no longer favored naval advocacy. Economic growth slowed. Soviet military procurement growth ended in 1976, according to CIA reports of 1983 and 1986.⁶ Domestic needs were pressing.

New Soviet Strategy, New Naval Purpose

Strategic building programs sanctioned by SALT I appeared to confirm parity, secured and buttressed by survivability and redundancy. It became apparent that neither side could circumvent nor negate the other's capacity for devastating retaliation. Nuclear preemption no longer made sense, nor did strikes against the other's homeland.

By 1977 Moscow had embraced a second postulate. Nuclear weapons and probable escalatory dynamics defy control and threaten holocaust. Nuclear potentials were not discarded. They remained the ultimate deterrent. Nuclear warfighting was to be avoided because of escalatory dangers, as the "friction" of real combat would likely defy control, whether horizontal or vertical. If unleashed, nevertheless, the only distinction that could possibly be maintained would be the ultimate one, between other areas and the superpowers' own homelands. (Because of the profusion of nuclear-capable systems at sea, and because nuclear potential remains a central theme of U.S. naval expansion, nuclear avoidance may not be feasible in this arena; on the other hand, and notwithstanding U.S. naval doctrine to the contrary, this is perhaps also the arena that can most easily be "quarantined.") Nuclear preemption against the United States or, conversely, against the U.S.S.R. is no longer viable. This means that strategic reserves must be able to survive a lengthy period of threat.

The Reagan administration's apparent espousal of nuclear warfighting tenets in the 1980s caused no change in Soviet posture.⁷ Soviet nuclear strike forces were modernized, but the strategic component's share of the defense budget was reduced (again, according to the CIA).⁸ Soviet funds were diverted to new conventional, "smart," and exotic weapon technologies that promised nuclear-type efficiency without the nuclear albatross of loss of control and purpose.

The navy also retooled. Priority efforts were directed to the development of long-range conventional sea and air-launched cruise missiles, and the systems were designed for reload. The new doctrine required sustainability

on land and at sea. First-salvo nuclear engagement expectations were replaced by scenarios that put a premium on conventional options and naval journals evinced new interest in the "operational level of war."⁹

Naval strategic forces were also affected as they no longer provided sole insurance. First, by the 1970s, Soviet strategists had become far more sanguine than their American counterparts about the impact of new accuracies on land missile survival odds. (A decade later, three-quarters of their strategic arsenal remained land-based, as opposed to less than one-quarter of America's.) They appreciated the fact that while *pro forma* accuracies reflected the calibration of gyroscopes and accelerometers over peacetime test ranges, wartime trajectories would entail different atmospheric and gravitational phenomena. While satellite readings can correct for many of these, theoretical accuracies are not likely to be fully realized. And, in view of improved silo-hardening techniques, a significant proportion of land-based missiles is likely to survive attack and be available for response. Secondly, ballistic missile defense remained a hope. Early technologies proved inadequate, but substantial investments in research reflected continuing aspirations. Finally, missile mobility problems were overcome. The mid-1980s saw deployment of a new generation of mobile intercontinental-range ballistic missiles.

The fear that new accuracies and counterforce dynamics imperiled land-missile survival gave special status to the SLBM force; as the, perhaps, sole future guarantor of Soviet retaliatory might, its survival prospects appeared sacrosanct. The sinking of a single Soviet SLBM might then have sparked an all-out exchange. The emergence of complementary insurance elements, redundant second-strike potentials, changed the equation. It suggests that a portion of the SLBM force may now conceivably be released for other theater and sea combat (anticarrier) operations. It also suggests that at least limited SLBM attrition can be tolerated, and that it will be answered by action against analogous high-value, strategic, yet offshore targets—enemy SLBMs or carriers. This interpretation is reinforced by, and is in fact a compelling and logical corollary of, the new doctrinal dictum that strikes against superpower homelands must be avoided.¹⁰

The navy's relative eminence was also threatened by the new doctrine's increased emphasis on combined-arms integration and sustained mobility, on combined-arms support for deep penetration and forward drive. Wartime Theaters of Strategic Military Operations (TVDs) were redefined,¹¹ and the wartime practice of Supreme Command representatives taking direct charge of these multifront, all-arms composites was institutionalized; Marshal Ogarkov's 1984 assignment to direct the crucial western TVD (incorporating Soviet and Warsaw Pact forces aimed at the central front) after seven and a half years as Chief of the General Staff, responsible for the doctrine's adoption and implementation, underlined the seriousness of purpose. Military bookstore display prominence, and other indicators, confirm Ogarkov's

continuing stature as the Soviet Union's most influential strategist. In the Soviet military the stature of the man reflects the stature of the post.

The navy stood, once again, as adjunct to a land and Army-dominated whole. Naval interventionary-type potentials were accorded low priority. The first genuine carrier would not be fully operational until the 1990s. The navy's procurement of specialized underway replenishment and amphibious assault vessels was set aside (after one Berezina and two Ivan Rogovs); landings would employ civilian transport and RO/RO ships. The combined-arms approach and the co-option of civilian resources reemphasized tradition, and the fact and purpose of a unified, integrated command structure.

Whereas Gorshkov, the "Father of the Red Navy," may have fought the new doctrine, his successor as Naval Commander in Chief, Vladimir Chernavin, anticipated and embraced it. Chernavin's embrace of the integrative approach went beyond mere acceptance of historical inevitability and fiscal circumstance.¹² His prior experience as submariner, and later as Commander of the Northern Fleet, suggests appreciation of the role and efficacy of land-based air support. (Fifty percent of the 4,000 kilometer-range Backfires, now armed with standoff missiles, have been assigned to Naval Aviation; Soviet air defense forces provide multiple interceptor and surface-to-air missile screens for naval bases and facilities.)¹³

Furthermore, the greatly extended range of maritime standoff threats against land targets meant that naval flank protection for European theater operations had to be correspondingly extended; land requirements demanded command of adjacent seas, or at least sea denial. In the north and Far East, the absence of a land buffer added a crucial defensive dimension to the argument—a dimension reinforced by the U.S. Navy's declared readiness to hit land targets in response to loss at sea. (Soviet strategists might doubt the logic, rationality and hence likelihood of retaliation against the homeland, but contingency planners must prepare for contrary mindsets and other eventualities.) Land security demands a naval buffer; a modern naval buffer must have high seas potency.

Moscow is not likely to add to its embryonic carrier fleet, however. The existing carrier, when operational, is likely to be assigned primarily to fleet protection, not power projection. The traditional Soviet view of carriers, as "sitting ducks," was reinforced by the Falklands War: the British Navy owed its survival to the extraordinary failure rate of Argentine munitions. Argentine Exocets served notice that power projection against air-rich environments is becoming increasingly hazardous. The point applies to distant interventionary designs; it also applies to the far more potent and sophisticated air defense screen that envelopes the Barents.

By adopting the combined-arms approach as his own, Chernavin appears to have broken the traditional pattern of naval rise and fall, and in the process has established a niche of perhaps greater substance and permanence.

Mid-1980s Soviet commentary assigned national territorial sectors to five Theaters of Strategic Military Operations (in war "they may stretch to several continents . . . over the whole globe—including . . . space"), but identified commanders for only four.¹⁴ The exception was the northwestern TVD which encompassed Leningrad and the Kola and projected out over northern Scandinavia. The 1983 Soviet *Military Encyclopedic Dictionary* notes that TVDs include "the coastal waters of the oceans . . . and the contiguous coastlines of continents and the airspace above them."¹⁵ Two contiguous oceanic TVDs were also identified, the Arctic and the Pacific—also without publicly designated commanders.

The formulas assign Baltic and Black Sea Fleets to continental TVDs. In the Arctic and Pacific, however, the overlap in continental/oceanic TVD responsibilities, and acknowledgement that TVD boundaries may be "variable," suggest different constellations, especially in the context of all-arms integration.¹⁶ Fleets may be subordinated to continental TVDs, but divisions, armies and even fronts may also be subordinated to oceanic TVDs. In the northwest the navy is dominant. In war, the Arctic commander is likely to be the naval commander in chief acting as designated representative of the Supreme High Command. As senior combined-arms commander in the region, his authority will extend to its *de facto* rear, namely the Northwestern TVD. In the Far East, the fact that the Pacific Fleet is not explicitly assigned to the continental TVD suggests that it may, in war, act as a separate oceanic TVD with responsibility extended to include air and land support forces or, alternatively, that it could be assigned to the (presumably senior) Arctic TVD commander.

The independent Russian Navy was vulnerable, beholden to fate and to circumstances over which it had little control or influence. Its moments of glory were transient. The new Soviet combined-arms navy, on the other hand, is integral to Soviet power. It is not transient.

America's new 600-ship navy, configured according to forward strategy precepts, with attack submarines penetrating close to Soviet base complexes, a doctrine that calls for strikes on Soviet land targets in response to clashes at sea and cruise missiles that can be launched from afar, serves the cause of Soviet naval advocacy. In earlier eras, coastal defense scarcely impacted on homeland survival, while naval power projection was a luxury, useful if you could afford it, but not necessary. Today's U.S. naval posture and emerging long-range strike potentials impact directly on the core concerns of the Red Army. Distinctions between periphery and heartland are erased. Technological and adversarial dynamics have compelled the Red Army to adopt and integrate naval potentials. The navy has become crucial to heartland defense—and to the deterrence task of ensuring that the adversary face the same dilemma, the same threat. During the 1960s, 1970s and early 1980s, only

the SLBM force was essential to Soviet deterrence. In the new threat environment, long-range naval surface and land/naval airstrike technologies also become vital. Previously their import could be dismissed as marginal. Today they are of the essence.

Finally, Moscow's official position on long-range (dual purpose) cruise missile developments is the same as her position on the weaponization of space: that both dynamics threaten to make verification (and hence arms control) impossible, that neither can alter the fundamental underpinnings of the strategic equilibrium, yet both will inevitably increase jitteriness, and instability. If these dynamics do proceed, however, the relative advantage may be Moscow's (though not one commensurate with the cost of greater instability). Today America's allies and forward-based systems ring the U.S.S.R. Advanced cruise potentials, deployed on civilian as well as military carriers, and space basing, will allow Soviet forward-based systems to ring the United States.

Notes

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2. C. G. Jacobsen, *Soviet Strategy—Soviet Foreign Policy* (Glasgow, Scotland: The University Press, 1972), pp. 142-160.
3. C. G. Jacobsen, *Soviet Strategic Initiatives* (New York: Praeger, 1979), pp. 73-117; on Soviet Arctic exploration, note for example *Tektonicheskaya Karta Arktiki i Subarktiki* (Leningrad, U.S.S.R.: Institute for the Study of the Arctic and Antarctic, 1967).
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6. C. G. Jacobsen, "Soviet Military Expenditures and the Soviet Defence Burden," *SPIRI Yearbook 1986* (Oxford, England: Oxford University Press, 1986), pp. 263-274.
7. N. V. Ogarkov, *Istoria Uchit Bditevnosti* [History Teaches Vigilance] (Moscow: Voenizdat, 1985), pp. 24, 47, 88.
8. *SPIRI Yearbook 1986*, p. 267.
9. New Soviet naval designs reflect the doctrinal emphasis on surface-to-surface sustainability; see e.g. *Defence*, June 1986, pp. 265-370. In *Morskoi Sbornik*, September 1986, Admiral Chernavin pioneers discussion of a conventional first salvo.
10. M. McCwire, *Soviet Military Objectives* (Washington, D.C.: The Brookings Institution, 1986), see chapters 1, 5, 7.
11. J. G. Hines and P. A. Peterson, "Changing the Soviet System of Control," *International Defence Review*, no. 3, 1986, pp. 281-289; see also Ogarkov, pp. 24, 47, 88; and M. V. Gareyev, *M. V. Frunze—Voyennyy Teoretik* [M. V. Frunze—Military Theory] (Moscow: Voenizdat, 1985), pp. 239-241, 380-381.
12. "Chernavin—the new C-in-C of the Soviet Navy," *Jane's Defence Weekly*, no. 2, 1986, pp. 61-62; see also V. N. Chernavin in *Morskoi Sbornik*, January 1982: "there are no purely independent spheres of armed struggle . . . [victory] is attained by the joint effort of all combat arms."; R. V. Shlomin in *Morskoi Sbornik*, April 1983 notes "the objective requirements . . . of mutual penetration of combat arms to the sphere of activities of the other combat arms."
13. Analogous trends began to affect US dispositions: *Memorandum of Agreement on Joint USN/USAF Efforts for Enhancement of Joint Cooperation* (Washington: U.S. Govt. Print. Off., 1982); see also *Basic Aerospace Doctrine of the United States Air Force* (Washington: U.S. Govt. Print. Off., 1984). This upgrades the "maritime role" to the status of "major mission."
14. Hines and Peterson, quoting from the *Polish Naval Review*, December 1983.
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Admiral John H. Towers and the Origins of Strategic Flexibility in the Central Pacific Offensive, 1943

Clark G. Reynolds

John Henry Towers entered World War II as an advocate of the aircraft carrier as the principal offensive component of the surface Navy. As Chief of the Bureau of Aeronautics, he was the U.S. Navy's counterpart to General H. H. "Hap" Arnold of the U.S. Army Air Forces. In October 1942 Towers was, partly because of his outspokenness, transferred out of Washington to Hawaii as Commander Air Force Pacific Fleet (ComAirPac) with a promotion to the rank of vice admiral. It was a new post designed to coordinate all aviation matters—administration, logistics, training, and allocation—in the war against Japan.

Like all "Pacific-type commands," ComAirPac was shore-based at Pacific Fleet Headquarters at Pearl Harbor, and Towers reported directly to the commander in chief of that fleet, Admiral Chester W. Nimitz. Nimitz' chief of staff and principal adviser was Rear Admiral Raymond A. Spruance, a battleship man and brilliant officer whose one real experience with carriers, by virtue of his last-minute substitution for the hospitalized Admiral William F. Halsey, won the crucial Battle of Midway that June. Not surprisingly, Towers and the handful of other aviation flag officers resented the fact that one of their own had not commanded in that epic battle in which four Japanese carriers had been sunk.

Between late 1942 and the summer of 1943 neither Vice Admiral Towers nor Rear Admiral Spruance had any opportunity to go to sea. Spruance was needed to counsel Nimitz about future operations in the Pacific theater. Towers had to juggle AirPac's stretched resources for the last two surviving carriers—*Saratoga* and *Enterprise*—and land-based Navy planes in the South

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Pacific until the newly-built carriers and planes, and trained pilots began arriving in mid-1943. As they did, Nimitz began organizing the new Central Pacific Force to mount the major counteroffensive westward toward Japan. In the spring of 1943 Nimitz had Spruance promoted to vice admiral and gave him command of the new force.

By selecting a nonaviator to command what would come to be known as the 5th Fleet, Nimitz rejected Towers' contention that an aviator should lead any fleet in which carriers comprised the main element. It also meant that Towers would remain shore-bound at Pearl Harbor, deprived of a seagoing command, which is precisely what Admiral Nimitz intended. In spite of Towers' proven ability to handle aviation matters, Nimitz resented Towers' criticisms of fleet policy, not simply Towers' belief that carriers and air admirals should be given the dominant role. Besides, Nimitz regarded Spruance as the better man.¹

What Nimitz had failed to appreciate about Towers was that he was much more than a good aviator and administrator. He also was a very perceptive strategist who nine years before had written the first thesis at the Naval War College on the role of aviation in naval strategy and tactics.² He believed strongly, and said so, that the carriers would give the fleet unprecedented offensive mobility. Towers made these views known in regular morning conferences with Nimitz and the other admirals and in memoranda to the Pacific Fleet commander. But since his views did not prevail, he complained that fleet policy was too defensive.

For example, during the early months of 1943 Admirals Nimitz and Spruance, and General Delos C. Emmons of the AAF feared another possible Japanese carrier attack on Pearl Harbor and wanted to recall fleet units from the South Pacific for protection. Further, the commandant of the 14th Naval District in Hawaii and close confidant of Nimitz, Vice Admiral Robert L. Ghormley, wanted to construct more bomb shelters at Pearl Harbor. Regarding this as a supreme waste of resources, Towers fired off a memorandum to Ghormley (his Academy classmate of '06) in June, saying, "I often wonder if Hitler's secret weapon isn't our defensive attitude."³

As Towers saw it, offensively employed carriers would provide the ultimate protection for Hawaii. In April 1943, a month after Spruance had presented Nimitz' defensive policy to the Joint Chiefs of Staff (JCS) in Washington, Nimitz asked Towers for his views on future strategy in the Pacific, specifically, possible operations against the Marshall Islands in the Central Pacific. Towers' reply was that for the current year most of the effort by the fleet's limited resources should be continued against Rabaul in the South Pacific. But when the new fleet forces became available at the end of the year, "the enemy's key position in the Carolines" of the Central Pacific should be attacked. He presented a preliminary draft for attacking Japanese bases in the Marshalls and advocated a subsequent attack on and capture of

Truk, the great advanced Japanese Fleet base in the eastern Carolines. This meant bypassing the Gilbert Islands to the south and keeping them neutralized by land-based and carrier air, an idea Towers had heard several months before from Marine General Charles F. B. Price. Such an attack on the "mutually supporting air bases in the Marshalls and northern Gilberts" would cause Japan to divert valuable naval and air forces away from Rabaul and the South Pacific.⁴

Towers was even ahead of the Allied Combined Chiefs of Staff who did not give the go-ahead for a Central Pacific offensive until the following month, May 1943. The JCS drew up a plan for the defeat of Japan which called for the seizure of the Marshall and Caroline island groups, precisely what Towers had recommended and which the Combined Chiefs quickly approved. At the end of the month the key strategist for the Pacific, U.S. Fleet Commander in Chief Admiral Ernest J. King, met with Nimitz in San Francisco. They both agreed that the Marshalls should be taken first. By mid-June the main assault had been settled for Kwajalein on or before 15 November. These decisions were entirely in line with the thinking of Jack Towers. On the other hand, the Joint War Plans Committee of the JCS also suggested an alternate plan for taking the Gilberts first, at least to get an operation in the Central Pacific underway.⁵

Vice Admiral Spruance, now equivalent in rank to Towers and scheduled to command the operation, had doubts about an inexperienced new fleet and assault forces plunging into the Marshalls. He expected, and hoped, that the Japanese Fleet would sortie from Truk and give battle. He feared that Japanese land-based air forces in the Marshalls and Gilberts would contest his advance. Spruance insisted on complete aerial reconnaissance of the target islands by land-based planes, and he also wanted land-based airpower to support the landings along with the carriers. Since no U.S.-held islands were within bomber range of the Marshalls, Spruance hit upon the idea of taking the Gilberts first. From captured airfields in the Gilberts, land-based bombers and fighters could support the key landings in the Marshalls.

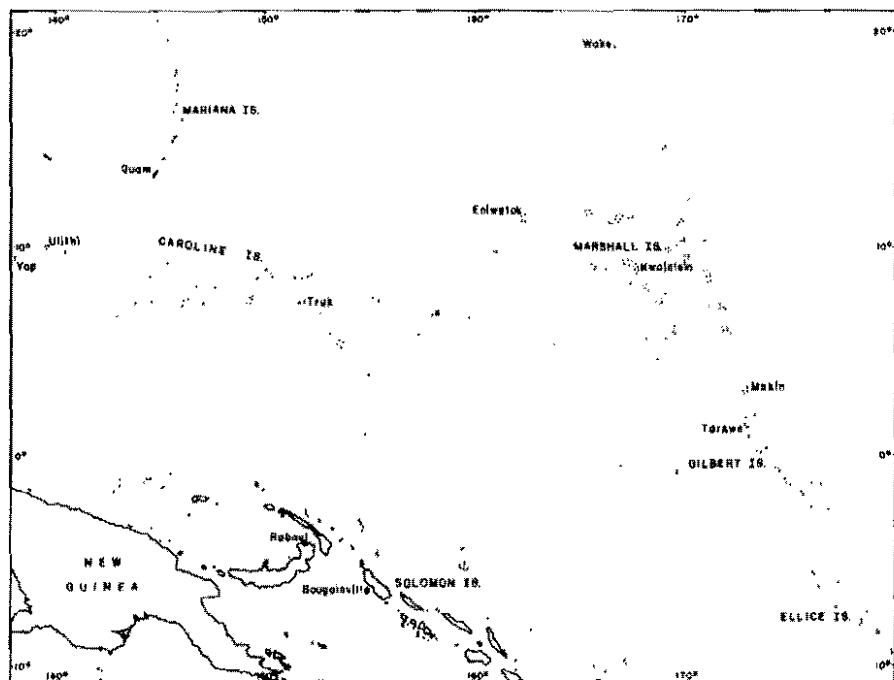
At first, no one at fleet headquarters bought Spruance's proposal, but he spent June and early July convincing Nimitz of the soundness of invading the Gilberts first. Nimitz finally agreed and recommended JCS approval which came on 20 July. The JCS ordered the fleet to assault Tarawa and Nauru atolls in the Gilberts in mid-November, followed by the Marshalls on New Year's Day of 1944. This timetable was affirmed by the Combined Chiefs of Staff a month later.⁶

Towers was kept out of the planning process. He steadfastly opposed wasting time, resources, and lives on the less-important Gilberts, believing that the many new carriers now arriving at Pearl Harbor could punch through the Gilberts to the Marshalls with their own aerial reconnaissance and close air support and attack the enemy fleet at or near Truk. Nimitz had

no choice but to solicit Towers' advice on the utilization of the new carriers, which he did on 11 August, but he did little to enlighten Towers on either the major operational plans or their details. Towers complained to Under Secretary of the Navy James Forrestal (who had served in his office as a naval aviator in World War I), that "those of us out here who are in a position to have a reasonably good idea of not only what is going on, but also of what is planned, have a feeling approaching utter hopelessness"⁷

Towers replied to Nimitz' request with a long memo on 21 August: "The rapidly expanding carrier strength of the Pacific Fleet is providing the Fleet with an air striking force of tremendous potential power and great strategic mobility." He noted that carriers should form the nucleus of the fleet and be kept concentrated in one force, while "extreme flexibility" should be exercised in redeploying them quickly as opportunities arose. Instead of tying them down in fixed timetables and locations, Towers argued that these fast carriers could neutralize island airfields, win local air superiority over beachheads, and range westward to strike Truk and bring on a fleet engagement. Land-based air "as may become available" would provide secondary backup to the carriers. Only qualified aviators who understood such strategic flexibility should lead such a force, whereupon he recommended that he, as ComAirPac, should command them.⁸

Nimitz disagreed with many of Towers' points in a personal meeting two days later, changed nothing in fleet doctrine and command, and gave



Spruance free rein in developing the operational plan for the Gilberts. Rear Admiral Richmond Kelly Turner reported in as Spruance's amphibious commander and during September worked out the details with Spruance and his staff. The new fast carriers were to be assigned cruising sectors off the Gilberts beaches to repel incoming enemy air attacks, attack the southern Marshalls during the landings, and provide air support to the assault troops. If the Japanese Fleet appeared, Spruance would form the traditional battle line of battleships and fight a gunnery duel in the manner of Jutland. The thorough planning for the first amphibious operation in the Central Pacific was meticulous, characteristic of Spruance, but unfortunately it was faulty, for Spruance and his staff were ignorant of the need to employ the carriers' mobility.

This represented a fundamental difference between Spruance and Towers—traditional rigid planning versus carrier flexibility. As the target date, eventually moved to 20 November, approached, Towers repeatedly questioned Spruance's plans for the Gilberts in special conferences with Nimitz' admirals. On 19 September he "urged as large a carrier force as possible," since eleven fast carriers would be available as opposed to only five fast battleships. Ten days later, in his own words, "In polite language, I protested the over-stressing of the training for the classic Fleet engagement" He accused Spruance and Turner of overlooking "our overwhelming carrier strength" and was supported the next day by Admiral Halsey, visiting from the South Pacific. He especially disliked tying down the carriers to patrol sectors where, without mobility, they would be vulnerable to air and submarine attack.⁹

Then, on 5 October, the very day that six of the new carriers were raiding Wake Island, Towers challenged Spruance and Turner in a special meeting called by Nimitz. That evening he dictated to his yeoman, "I made the opening statement that I considered too much caution was being exercised, too large forces being employed against secondary objectives, stating that, to me, it appeared we were using elephant guns against rabbits. I made the blunt statement that I felt that, unless a more offensive attitude is taken and our great carrier strength employed to the limit, we might all lose our jobs, and justly so."¹⁰

Towers therefore recommended that the invasion of the Gilberts—Operation Galvanic—be abandoned in favor of a direct invasion of the Marshalls. The week before, Makin had been substituted for distant Nauru as the other amphibious target with Tarawa in the Gilberts, but Towers had no use for that atoll either. The seizure of the Marshalls would reduce the Gilberts in importance, as—Towers reminded Nimitz—he had recommended to him six months before. Noted Towers: "I did not remind him that Galvanic had been drastically modified since first ordered, nor did I remind him that it had been recommended by him"—at the urging of Spruance. Towers at least

wanted pre-Galvanic carrier strikes on the Marshalls and Nauru to eliminate enemy air strength.¹¹

Spruance sat through these criticisms seething with rage, hating Towers for them. Averse to controversy of any sort and dead set against altering carefully laid plans (issued in their final form on 29 October), he and Turner argued for their Gilberts program. With Towers away over the next several days, his arguments were carried on by his articulate chief of staff, the brilliant Captain Forrest Sherman, and by visiting Vice Admiral Aubrey W. Fitch, commander of naval air forces in the South Pacific. Nimitz supported Spruance and rejected the proposed pre-Galvanic strikes, but the controversy resumed in mid-October when Towers returned. At one point Spruance actually agreed with Towers that to use carriers purely on the defensive was improper, but amphibious commander Turner strenuously disagreed. Finally, Nimitz decided to let Spruance run the Gilberts operation as he saw fit.¹²

Towers, however, had been thinking ahead. Late in September he had recommended in writing to Nimitz that, immediately following the seizure of the Gilberts, the carriers should be released to attack Truk, ". . . the best prospect of inflicting maximum damage on [the] enemy." Nimitz forwarded the recommendation to Admiral King, who liked it and ordered Nimitz to study it more closely. Nimitz asked Towers to elaborate, and on 1 November he did so, stating that the Truk raid should take place in mid-December. The only drawback Towers could see was that the Truk operation would force a delay in taking the Marshalls. Anyway, the Marshalls invasion was delayed days later when lack of sufficient transports and assault craft caused the Kwajalein assault date to be moved back two weeks, to mid-January 1944.¹³

Suddenly, events in the South Pacific forced Nimitz and his planners to adopt the strategic flexibility made possible by the new fast carriers. To protect Halsey's new beachhead at Bougainville in the Solomons, on the morning of 5 November planes from Halsey's only two carriers, the *Saratoga* and *Princeton*, crippled six Japanese cruisers at Rabaul which had been threatening to interfere at Bougainville. Immediately upon receipt of this news, Admiral Towers recommended to Nimitz that three of the carriers about to sortie to the Gilberts be sent first to Halsey for a follow-up strike on Rabaul. Everyone agreed, and Halsey gladly concurred.¹⁴

Now, however, Admiral Nimitz realized that the two carriers already in the South Pacific and the three to be sent there might be delayed from rejoining the Gilberts-bound armada. The next day, 6 November, he recommended that Spruance devise a possible alternate plan with only half his carrier strength, namely, postponing the assault on Makin. Logistical considerations ruled this out, whereupon Admiral Turner said that both Makin and Tarawa could still be assaulted simultaneously with only six carriers in support if the planned covering strikes on the southern Marshalls were eliminated. Since this would badly expose the carriers to Japanese

air strikes from the Marshalls, Towers again attacked the notion of invading Makin at all and suggested postponing Galvanic two more weeks. Nimitz demurred, however, from making any changes in the plan and was supported by a directive from Admiral King.¹⁵

That night, in a long conversation with Towers, Turner expressed his chagrin at the planned Central Pacific operations as merely "playing around the fringes." He said he wanted "a direct assault on and occupation of Truk," (Towers' words) followed by a push into the South and Southwest Pacific. Towers urged him to say so at the usual meeting next day, and he did. The day after that, 8 November, the designated fast carrier commander for the Gilberts, Rear Admiral Charles A. Pownall, recommended post-Galvanic carrier strikes against Japanese air and submarine bases in the Marshalls. But Spruance insisted on keeping the fast battleships off the Gilberts to engage the Japanese battle line, should it appear! Spruance still devised his strategy and tactics along battleship lines. Nimitz decided to postpone a decision on this recommendation, for time was running out. That very same day, the 8th, the task group being sent south to Halsey—carriers *Essex*, *Bunker Hill* and *Independence*—sortied from Pearl, followed to sea two days later by the two task groups totalling six carriers bound for the Gilberts. Galvanic was finally underway.¹⁶

The first instance of Towers' strategic flexibility worked handsomely. The *Essex* and *Saratoga* task groups administered the necessary blows to Rabaul on 11 November and repelled a determined land-based air attack. Then they wheeled northward to join the bombardment ships and escort carriers off the Gilberts. Spruance's timetable did not have to be upset after all. Yet, back at fleet headquarters on the 13th, Towers found himself confronted with another situation calling for strategic inflexibility. A proposal was submitted to establish strict rules for shipping pools and priorities for the Pacific. He countered it with the observation that air operations required mobility and recommended his own revision of the plan to accommodate the special needs of aviation. His revisions were adopted verbatim by Nimitz and his staff two days later.¹⁷

But there was still no flexibility in the Spruance-Turner air support plan for Galvanic. Neither the small escort carriers nor the supposedly "fast" fast carriers were allowed to move outside their defensive cruising sectors after beginning their strikes on the target atolls and southern Marshalls on 18 and 19 November. The next night, the 20th, after the troops had stormed ashore, long-range Japanese torpedo bombers pinpointed and attacked the *Essex* group off Makin. They were based in the northern Marshalls—Kwajalein—as Towers had warned. The light carrier *Independence* took a damaging torpedo hit that forced her to retire for repairs that would take six months.

Lest more carriers be stricken, Towers confronted Admiral Nimitz the next morning and recommended that the fast carriers be released from their

defensive sectors to go north and strike Kwajalein with its airfields and submarine anchorage. When Nimitz inquired of Spruance's motives for tying down the carriers, Towers and Rear Admiral Charles H. McMorris, Nimitz' deputy, explained Spruance's fear of a Japanese Fleet sortie and battle. After a long discussion, Nimitz finally concurred and ordered Towers, McMorris, and Forrest Sherman to write Spruance a directive for six fast carriers to be released to hit Kwajalein. The order went out on the 24th, too late to save the escort carrier *Liscome Bay*, located by a Japanese submarine that very morning and sunk with a loss of 644 men.¹⁸

Towers' case for strategic flexibility had finally carried the day, but only after lives and ships had been lost or crippled. Admiral Pownall pulled six carriers off station and struck Kwajalein on 4 December, but his unaggressive leadership caused the new *Lexington* to be torpedoed and nearly lost in a seven-hour-long night torpedo-plane attack. After much discussion and criticism of Spruance's misuse of the carriers, Nimitz held a special meeting on 23 December with Towers, McMorris, and his planning officer, Forrest Sherman, whom he had just moved from Towers' staff to his own. As Towers recorded it, "I strongly recommended changes to bring about more aggressive use of carrier forces," beginning with the relief of Pownall by Rear Admiral Marc A. Mitscher. This was done immediately, and Mitscher soon proved his worth. The Marshalls landings, now set for the end of January 1944, were planned to include the operation long advocated by Towers—a major carrier attack on Truk in February.¹⁹

Not only that, Towers won another cause he had championed, to the irritation of Nimitz, namely, that either the Pacific Fleet commander or his deputy should be an experienced naval aviator. To Nimitz' everlasting credit, he had been forcibly impressed with the wisdom of this idea during the foregoing events. At the beginning of January, he and Admiral King agreed to elevate Towers to Deputy Commander in Chief Pacific Fleet and Pacific Ocean Areas.²⁰ Furthermore, the position would be redefined to include all aviation matters. With Towers continuing to provide Nimitz with the expertise for strategic flexibility for the carrier-centered fleet, and Mitscher leading those carriers under Spruance, the Central Pacific offensive of 1944 could go forward aggressively. Jack Towers' victory had been a major step forward in the strategic transformation of the modern U.S. Navy.

Notes

1. Thomas B. Buell, *Master of Sea Power: A Biography of Fleet Admiral Ernest J. King* (Boston, Mass.: Little, Brown, 1980), p. 366, goes so far as to say that "Nimitz came to hate Towers" Towers had commanded the carriers *Langley* (1927-28) and *Saratoga* (1937-38) and had twice been chief of staff to the fleet carrier commander (1931-33, 1936-37).

2. Captain John H. Towers, "The Influence of Aircraft on Naval Strategy and Tactics," Naval War College Senior Class of 1934, Thesis Record Group 13, Naval War College Archives, Newport, R.I.

3. Thomas B. Buell, *The Quiet Warrior: A Biography of Admiral Raymond A. Spruance* (Boston, Mass.: Little, Brown, 1974), p. 161; Towers to Ghormley, 9 June 1943, Towers Papers, in possession of the author.

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4. Buell, *Spruance*, pp. 160-162; E. B. Potter, *Nimitz* (Annapolis, Md.: Naval Institute Press, 1976), pp. 237-238; author's conversation with Vice Admiral W. M. Beakley in 1965; Vice Admiral Herbert D. Riley to Mrs. John H. Towers, 19 July 1961, Towers Papers; Towers "Memorandum for Files," entries of 5 October and 7 November 1943 (hereafter cited as Towers Diary); Captain Miles Browning to Halsey, 1 May 1943, Halsey Papers, Box 13, Library of Congress, Washington, D.C.; Towers to Nimitz, 28 April 1943, Halsey Papers, Box 16.
5. Samuel Eliot Morison, *Aleutians, Gilberts and Marshalls* (Boston, Mass.: Little, Brown, 1957), pp. 80-82; Buell, *King*, pp. 356-358; George C. Dyer, *The Amphibians Came to Conquer: The Story of Admiral Richard Kelly Turner*. (Washington: U.S. Gov't. Print. Off., 1972), v. 2, pp. 613-616.
6. Morison, pp. 83-84, 201; Buell, *King*, pp. 358-359; Buell, *Spruance*, p. 165; Potter, p. 245; Maurice Matloff, *Strategic Planning for Coalition Warfare, 1943-1944* (Washington: U.S. Gov't. Print. Off., 1959), p. 207.
7. Towers to Forrestal, 18 August 1943, Towers Papers; Clark G. Reynolds, *The Fast Carriers: The Forging of an Air Navy* (New York: McGraw-Hill, 1968), p. 75.
8. Towers to Nimitz, 21 August 1943, Towers Papers; Reynolds, pp. 75-77.
9. Towers Diary, 19, 29, 30 September 1943; Reynolds, pp. 77, 93-95.
10. Towers Diary, 5 October 1943; others recorded Towers as saying, "Spruance wants a sledgehammer to drive a tack." Dyer, v. 2, p. 629.
11. Towers Diary, 5 October and 6 November 1943.
12. *Ibid.*, 7, 9 October 1943 (notes kept by Sherman), and 11, 14, 17 October 1943; Buell, *Spruance*, pp. 216-219; Reynolds, pp. 88-89, 95-96; Dyer, v. 2, pp. 632-639.
13. Towers to Nimitz, 21 September, 23 October and 1 November 1943, Towers Papers; King to Nimitz, 21 October 1943, and Nimitz to Towers, 30 October 1943, Towers Papers; Towers Diary, 2 November 1943; Potter, pp. 254-255.
14. Towers Diary, 5 November 1943.
15. *Ibid.*, 6, 8 November 1943.
16. *Ibid.*, 7, 8 November 1943, in which Towers quoted Turner.
17. Reynolds, pp. 100-102; Towers Diary, 13, 15 November 1943.
18. Reynolds, pp. 102-104; Towers Diary, 21, 24 November 1943. After the loss of the *Liscome Bay*, Rear Admiral Arthur W. Radford, one of the carrier task group commanders, observed that Spruance "practically let us write our own ticket." Author's conversation with Radford in 1965.
19. Reynolds, pp. 105-108, 114-115, 121-123; Towers Diary, 23 December 1943.
20. Reynolds, pp. 47-48, 120-121; Towers to Nimitz, 4 October 1943, Towers Papers. Towers was awarded the Legion of Merit on 25 February 1944 for his role as ComAirPac since October 1942, and in Towers' Fitness Report for the period 1 April 1943 to 27 February 1944, Nimitz gave him all 4.0 marks with the comment, "An excellent officer who has performed most satisfactorily the highly important and complex duties of ComAirPac during a period of great expansion." Military Personnel Records Center, St. Louis, Mo.

France and SDI

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Those critics who argue that the Strategic Defense Initiative (SDI) will divide the Atlantic alliance, frequently cite the French Government's opposition as evidence. The French view of SDI, however, is neither simple nor monolithic. While President François Mitterrand has been consistently critical of SDI, Prime Minister Jacques Chirac is far more supportive, at least rhetorically. Key members of the defense establishment, both in government and in the private sector, moreover, favor a national antimissile system to defend France's military installations. While a space-based area defense is opposed as weakening deterrence, a point defense of U.S. intercontinental ballistic missiles (ICBMs) is widely seen as enhancing it.

These were among the salient points raised during interviews in Paris with senior government officials, members of the National Assembly, defense analysts and executives of firms specializing in advanced technologies. The interviews contradict much of what has been written on the French reaction to SDI. Launching SDI without prior consultation with France did not ensure the lasting opposition of the French Government, despite frequent observations to the contrary. It is also incorrect to argue that French leaders are genuinely worried that SDI will "decouple" the United States from Western Europe by encouraging a Fortress America mentality. Nor is it true that for the foreseeable future the French will be concerned about the possibility of Soviet missile defenses undermining the *force de frappe*.

Senator Jean François-Poncet, who served under former President Valéry Giscard d'Estaing as Foreign Minister, stated that the United States will only begin to consult with the European members of NATO once Europe becomes united. In the meantime, Washington's impatience with its weak and

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fractious allies is only natural: "If the U.S. had discussed SDI with NATO before Reagan's speech in March 1983, they would still be in the process of discussion." A senior defense adviser to Mitterrand, while acknowledging that Washington's failure to consult with its allies on issues affecting their security is a chronic and familiar problem, insisted that it did not determine France's official policy toward SDI. Nevertheless, informed observers in France cite the sixty-day deadline which Secretary of Defense Weinberger gave to U.S. allies for responding to his offer of participation in SDI as an example of a "typical lack of understanding of the European mentality." While criticizing America's diplomatic clumsiness, however, they remain remarkably philosophical about the Atlantic alliance and emphasize the value of close transatlantic relations.

Mr. François-Poncet also said that the French have not been preoccupied with SDI because it is still evolving and has, thus far, limited relevance for France. Several members of the National Assembly concurred, suggesting that neither France nor other NATO allies had any business approving or disapproving of SDI since it is an American project, initiated, managed and paid for by the United States with the primary goal of enhancing American security.

Nonetheless, the three major parties have serious doubts about the technological feasibility of making nuclear weapons "impotent and obsolete." Mitterrand's *Parti Socialiste* (*PS*) dismisses this vision as unrealistic (and undesirable), but appears to accept the inevitability of SDI and recommends joint European projects in related fields. Not faced with the responsibilities of government, the *PS* is even more outspoken than Mitterrand in its criticism of SDI as an obstacle to East-West arms control agreements. While the *Rassemblement pour la République* (*RPR*) of Prime Minister Chirac strongly criticizes Mitterrand's negative attitude towards SDI, it also rejects Reagan's vision. Instead, the *RPR* supports active French participation in SDI research to acquire technology for a European ballistic missile defense (BMD) capability. The Gaullists support a European BMD program to avoid a condominium between the superpowers in which Western Europe would be held hostage.¹ Like the *PS*, the *RPR* tends to have policies which are more extreme than those of its members who hold positions in the government. The *Union pour la Démocratie Française* (*UDF*) of Giscard d'Estaing and former Prime Minister Raymond Barre are also critical of Mitterrand's hostility towards SDI. However, the *UDF* believes that France can benefit by participating in SDI research.²

Whether SDI will have a positive or negative effect on French security depends, in part, on how SDI evolves. Our interlocutors agreed, for example, that if ballistic missile defense could reduce the vulnerability of ICBM fields in the United States, and in particular, urban centers, to Soviet attack, the American commitment to defend Europe by conventional or nuclear means

would be strengthened. This view is endorsed in a major study on SDI entitled "France, Europe and ABM," published last year by the Foundation for National Defense Studies in Paris. According to this view, a missile defense system which protects population centers in the United States would further "couple" U.S. and West European security by increasing the credibility of the American nuclear guarantee. Michel Tatu, chief editorial writer for *Le Monde* and frequent commentator on strategic issues agrees: "It is hard to see why what is already unacceptable today—the loss of Europe to Soviet domination—would be more easily tolerated in fifteen years by an America that had become less vulnerable and, hence, stronger."³

Most French defense analysts doubt, however, that SDI would sufficiently reduce the vulnerability of American cities to have such a coupling effect because the Soviet Union would be able to penetrate area defenses with simple countermeasures. Furthermore, area defenses that were not totally effective would trigger an offensive arms race at higher and less stable levels as well as undermine East-West détente.⁴ These analysts would prefer, on balance, an American system that protected ICBMs and, consequently, increased the U.S. capacity, if not its willingness, to retaliate against a Soviet offensive.

While a proliferation of Soviet offensive forces would naturally be contrary to French security interests, most defense experts in France do not consider the expansion of Soviet missile defenses to be a major threat to the *force de frappe*. The French nuclear weapons modernization program now nearing completion has already taken into account future improvements in Soviet antimissile (ABM) systems. France's plans to refit 5 submarines with the M-4 missile equipped with 6 warheads will result in a French nuclear arsenal of roughly 500 warheads by the mid-1990s.⁵ While that is less than one-twentieth of the number of warheads currently in the U.S. arsenal, France would still be able to observe the strategic principle of proportionality according to which an aggressor can be deterred by threatening it with destruction equal to or greater than the gain it hopes to achieve. The French military is also developing the SX (a land-based missile that rotates in flight), working on technology that would enable missiles to have short boost-phases and low trajectories, and equipping existing missiles with hardened warheads and decoys. Other measures under consideration include developing cruise missiles, antisatellite (ASAT) weapons, and targeting more Soviet urban, administrative and economic centers.⁶ This last measure would reinforce the shift that has taken place in France's strategic targeting since 1980.

While pursuing many of these measures would be expensive, it would not require increasing the nuclear share of the defense budget beyond one-fifth, the current figure. In fact, the expenditures for nuclear modernization will soon decline and the removal of the medium-range ballistic missiles (MRBMs) from the *Plateau d'Albion* by the end of the 1990s will result in substantial savings.⁷

Members of the French defense establishment are confident that a significant percentage of France's nuclear force will be able to penetrate Soviet defenses and inflict an unacceptable level of damage, at least for another 10 to 20 years. They are very confident that the most important leg of the French strategic triad—the nuclear-powered submarine fleet—will remain invulnerable in the foreseeable future because breakthroughs in antisubmarine warfare technology are improbable. French defense experts doubt whether the Soviets will ever possess the financial and technical means to deploy effective missile defenses around all of their large and medium-sized cities.⁸ France's antecedent nuclear strategy is less demanding than the British in that it does not have a "Moscow Criterion" according to which the Soviet capital, currently defended by nearly 100 interceptor missiles, must be an available target for retaliation. While a significant Soviet ABM system would render precise and controlled retaliatory strikes ineffective, successive French governments have never endorsed limited nuclear options (LNOs) and flexible response. French defense officials have occasionally referred to the "prestrategic" strikes that France would launch before using its countervalue options to repel Soviet aggression. French nuclear strategy, however, remains based on the assumption that the early use and rapid escalation of nuclear weapons constitute the most credible deterrent.⁹

Despite this confidence, French defense experts would prefer not to cope with the uncertainties that a Soviet ABM system might introduce into the strategic equation over the long term. Their concern about strategic stability is compounded by their fear that the United States will not be able to maintain both its current level of commitment to defend Europe with conventional weapons and an expensive SDI program.

While these experts are ambivalent, therefore, about the desirability of altering the offense-defense mix at the strategic level, there is a significant amount of support for greater emphasis on defensive technologies at the theater level. Nonnuclear terminal defense of airfields, harbors, munitions factories and other military installations has many supporters in France, mostly on the political right. These supporters fear that the nation might become vulnerable to a highly accurate missile attack with conventional, chemical or low-yield nuclear warheads that would destroy key military assets without inflicting substantial collateral damage to the civilian population. General Jannou Lacaze, former French Chief of Staff, discussed this possibility in May 1985: "The attack of our fixed installations—Albion, strategic bases, pre-strategic missile depots, command posts, communication centers—by ballistic or cruise missiles with conventional warheads represents a new threat which we must take into account, all the more since an aggressor could be led to believe that their use would not be considered a major attack and would not give rise to massive reprisals."¹⁰ According to this scenario, French leaders would have to choose between capitulating to Soviet threats

and initiating a nuclear exchange. Consequently, defense against bombers, cruise missiles and nonballistic SS-21s, 22s and 23s should be improved, according to a senior national security adviser to Mitterrand, even if it requires a revision of the 1972 ABM Treaty.

The nonmilitary aspects of SDI have attracted as much attention in France as the strategic ones. French companies do not expect to receive a large share of SDI work. In fact, only a few contracts of modest size have been signed, so far, on the Continent. They believe that the strict U.S. regulations limiting technology transfer and the pressure upon Congress to restrict the Pentagon from awarding major contracts to overseas firms will prevent them from reaping significant financial benefits. SDI is attractive to them, however, because of the new fields of research involved; even small contracts involving cooperation with U.S. firms could yield valuable technological advances.

Some defense experts in the French Government and many in the private sector are concerned about the technological challenge presented by SDI; they believe that more active participation in SDI research is essential if France is to remain financially and technically capable of responding effectively to the strategic consequences of missile defense. There is also widespread interest in the possible benefits that such participation would bring to the civilian sector of the economy: advances in electronics, telecommunications, software, high-speed computers and artificial intelligence.¹¹ Executives of France's leading defense contractors do not believe that Mitterrand's refusal to sign a memorandum of understanding (MOU) with the U.S. Government will disadvantage them with respect to British, West German and Italian companies in the competition for contracts. They are confident about their ability to produce competitively priced, high quality and technologically advanced products. The expertise they have to offer is principally in the fields of command, control, communications and information (C³I),¹² battle-management systems, penetration aids for missiles, lasers and optics.

The French are reluctant to sign an MOU with the United States, citing the West German experience as proof of an MOU's restricting character. According to François Heisbourg, Vice President of Thomson International, the Kohl government may have given away a valuable bargaining lever by endorsing SDI before negotiating the most favorable terms of its MOU with the U.S. Government. As a result, West German industry is tied "hand and foot" to the Americans because the U.S. Government has the right to determine which technologies are too sensitive to transfer as long as disputes over classification persist. West Germany has obliged itself to support SDI with no guarantee of receiving any new technologies in exchange for its endorsement.

Mitterrand wishes to be free from such restrictions: He launched the European Research Coordination Agency (EUREKA) project, a high-

technology program with primarily civilian applications, out of concern that SDI might deprive France of its best research scientists and that the Pentagon might treat French firms as subcontractors rather than as equal partners. Although this project takes a step in the right direction, the belief is widespread in France that EUREKA is a poor substitute for SDI because it combines the worst of several elements: insufficient public capital for investment in research; a high-risk factor for those firms which are participating; government regulations which stifle rather than promote entrepreneurship; and limited attention to applied technology.

"Cohabitation" has had little impact on France's policy towards SDI. While supporters of Chirac criticize Mitterrand for his stand on SDI, it is more the tone of his rhetoric than the substance of his position to which they object. Although Chirac openly endorses research on antimissile defense and would like to involve France more directly in SDI to exert greater influence over the program's direction, he opposes negotiating an MOU with the United States or giving *carte-blanche* support to Reagan's vision of replacing nuclear deterrence with a space-based antimissile shield. Nevertheless, if SDI evolves into a point defense of American ICBMs and, consequently, enhances rather than replaces deterrence, France after Mitterrand might become Europe's most enthusiastic supporter.

Notes

1. Based on an interview with François Fillion, defense spokesman of the RPR.

2. Based on an interview with President Giscard d'Estaing; see also John Fenske, "France and the Strategic Defence Initiative: Speeding up or Putting on the Brakes?" *International Affairs*, Fall 1986, pp. 240-242.

3. Michel Tatu, *Eux et Nous* (Paris: Fayard, 1985), p. 174.

4. Similar European views on SDI's negative implications for arms control and détente are well covered by David Yost, "European Anxieties about Ballistic Missile Defense," *Washington Quarterly*, Fall 1984, pp. 118-121.

5. See David Yost, *France's Deterrent Posture and Security in Europe*, pt. 1, Adelphi Papers, no. 194 (London: International Institute for Strategic Studies, Winter 1984-85), p. 22. When the single-warhead intermediate-range ground-launched ballistic missiles in Haute Provence are added to the 480 warheads of the 5 submarines equipped with M-4 missiles and the 16 warheads of the 1 submarine equipped with M-20 missiles, the total warhead count reaches 514. A seventh submarine equipped with the advanced multiple-warhead M-5 missile will probably enter service in 1994. (The Mirage bomber force will have been converted to a theater role by that time.) The number of warheads on land and sea available on very short notice for use in a retaliatory strike will be under 400.

6. Ivan Margine (pseudonym), "L'Avenir de la Dissuasion," *Défense Nationale*, April 1978, p. 10, as cited by Yost, *France's Deterrent Posture and Security in Europe*, pp. 23-24. On pages 20-26 Yost refers to some of these techniques of circumventing missile defenses but concludes that a significantly improved Soviet ABM network could seriously erode the credibility of the *force de frappe*.

7. Interview with François Heisbourg, Vice President of Thomson International, 13 June 1986.

8. Interview with Georges Fricaud-Chagnaud, Director of the Foundation for National Defense Studies, 12 June 1986. This view was expressed by top defense advisers to Mitterrand in the General Secretariat for National Defense.

9. Yost recounts in *France's Deterrent Posture and Security in Europe*, pp. 41-42, that a discussion took place in the French Government in the late 1970s about the pros and cons of shifting toward a more flexible targeting strategy. The concept was rejected because it would require a massive financial investment and buildup of both warheads and delivery vehicles. Yost cites Prime Minister Barre's conclusion that "For our

country, the problem of choosing between an anti-forces strategy and an anti-cities strategy does not arise." See Raymond Barre, "La Politique de Défense de la France," *Défense Nationale*, November 1980, p. 14.

10. Valedictory speech in May 1985 given by General Lacaze at the Institute for the Higher Study of National Defense, as reprinted in *Défense Nationale*, July 1985, p. 22 and cited by François Heisbourg on p. 91 in Andrew J. Pierre, ed., *The Conventional Defense of Europe: New Technologies and New Strategies* (New York: The Council on Foreign Relations of New York, 1986). The impact of increasingly accurate, low-yield Soviet missiles on the strategic doctrines of France and NATO is one of General Pierre-Marie Gallois' central concerns.

11. Interview with Jacques Battistella, technical adviser at MATRA, Paris, 16 June 1986.

12. The high level of French sophistication in this area was demonstrated when the U.S. Army chose to buy the RITA ground communications system instead of the British PTARMIGAN.



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War Games, Analyses, and Exercises

Peter P. Perla

Short of actual military operations, the Navy evaluates its combat capabilities in three ways: war games, systems or operations analyses, and exercises. The Navy uses all of these techniques extensively, and their roles often seem to overlap. Too often, wargaming, analyses, and exercises are viewed as functioning independently of one another or even in competition with one another.

This article outlines and describes the major roles of war games, analyses, and exercises; and, further, examines their interrelationships and defines some of the ways they can complement each other in the study of the Navy's warfighting capability. Only by integrating the information available from all three processes can the Navy obtain a balanced and well-rounded understanding of the potential problems and opportunities of actual combat. Because my emphasis will be on wargaming, this technique is compared first to analyses and then to exercises. The discussion concludes with a summary of the interrelationships and the complementary nature of the three processes.

Definitions

A war game is a warfare model or simulation whose sequence of events is interactively affected by decisions made by players representing opposing sides, and whose operation does not involve the activities of actual military forces. The key words in this definition are *players* and *decisions*. Fundamentally, wargaming is an experiment in human interaction and is best used to investigate processes, not to calculate outcomes.

Analysis, or operations research, on the other hand, has been defined as "a scientific method of providing [decisionmakers] with a quantitative basis for decisions."¹ Here, the key words are *scientific* and *quantitative*. Because the field of analysis is so large and diverse, many definitions of its nature have been proposed,² but the scientific and quantitative nature of the discipline appears to be its most fundamental characteristic.

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For the purposes of this discussion, a military exercise can be considered any activity involving the operation of actual military forces in a simulated hostile environment. Here, the key words are *forces* and *simulated*. Although the Navy conducts exercises of many types and for many reasons, true exercises are characterized by real-time operation of ships and aircraft. These forces generally expend real or simulated weapons against some "enemy" force. Of course, these "enemy" forces must also be played by U.S. units.

It is clear from the above definitions that, although often related, and in some ways similar, war games, analyses, and exercises tend to focus on different aspects of warfighting reality. Consequently, although each technique can be an effective learning device for specific areas, each also tends to be less effective in other areas.

The physical sciences are the paradigm of analysis. Analysis focuses on the physical processes of reality, adopting a philosophy of approximating those processes with mathematics that can, in some sense, be "solved." Analysts build mathematical models of reality, take measurements to quantify the parameters of the models, and then manipulate both models and parameters to learn about reality or to find the best solutions to the problems it poses. Although the mathematics is objective, the choices of models and parameters, underlying assumptions, and sometimes the method of solution are all subjective. As a result, to translate learning about the model into learning about reality can be difficult. In making this translation, analysis must simplify and often discard much that is not reproducible or readily predictable—including, at times, human behavior.³

War games, on the other hand, revolve around human decisions. Learning from war games comes both from the experience of making decisions and from the process of understanding why those decisions are made. The outcomes of decisions are defined by mathematical models that are often similar to those of analysis, however, these models are employed in a fundamentally different way. Wargaming models are typically stochastic in nature—the "roll of the dice" provides a wide range of possible outcomes or snapshots of reality with which the players must deal. In this sense, model results should be considered inputs to war games, whereas such results are often the outputs of analyses. War games do not, and should seldom attempt to, produce quantitative measures. Their value lies in qualitative assessments of why decisions are made. Thus, to exploit wargaming, the physical sciences must give way to a new paradigm, that of history. People and decisions become paramount.⁴

Exercises focus on doing. They are primarily tools for training and are usually designed with such goals uppermost. Decisions are sometimes restricted because of requirements to exercise systems and train personnel. Even free-play exercises are generally restricted because of safety requirements or geographic limits on operations. Exercises are often viewed as experiments providing data

for models used in analyses or games. In many cases, such a view is a useful one but one that requires care in interpreting numbers whose origins are sometimes difficult to judge. There is no known accurate way of adjusting for exercise artificialities. Thus, in order to focus on execution, exercises often restrict the physical parameters and processes and limit the potential decisionmaking. As with analyses and war games, the actual results or outcomes of the execution can only be approximated. Exercises, too, are not real.⁵

War Games and Analyses

On the surface, wargaming has much in common with systems or operations analyses. Scenarios underlie and structure the research; data bases provide the basic information about physical parameters and processes; mathematical models simulate some aspects of reality; and rules and procedures assure the logical flow of cause and effect. In both their goals and their operation, however, war games and analyses differ significantly.

In the defense community, the term analysis usually connotes systems, operations, or campaign analysis. As described earlier, such analysis may be characterized as a technique for quantifying and manipulating information about physical parameters to calculate the outcome of physical processes. Wargaming, on the other hand, is a tool for exploring the effects of human interpretation of information. War games focus on the decisions players make, how and why they are made, and the effects that they have on subsequent events. Classical campaign analysis is the form of analysis that most closely resembles wargaming. Thus, a comparison of these two techniques best highlights their differences.

When carefully structured and thoroughly carried out, campaign analyses might be expected to yield valid insights about:

- the feasibility of strategies;
- areas of strength and weakness on both sides;
- factors and parameters that critically affect the results and the sensitivity of the results to them;
- how the various types of forces can be used to advantage; and
- the relative contribution of the various types of forces.

To accomplish these sorts of objectives, campaign analysts usually define a sequence of events—often simply a string of engagements—and calculate the expected outcome of those events based on the postulated mathematical models and information about forces and capabilities. In rare cases, they calculate a distribution of possible results. Through trial and error, analysts go back through the sequence to determine what changes in strategy or tactics could result in a more balanced outcome. The old sequence is discarded and replaced by the new. This iterative procedure goes on until the analysts are

satisfied that both sides are employing nearly optimized strategies, and then the campaign is run to an analytical conclusion. The result, usually defined in terms of expected attrition, becomes the basis for assessing feasibility or identifying critical factors and for comparing variations of the assumptions underlying the analysis.

War games, on the other hand, allow for the continual adjustments of strategies and tactics by both sides in response to developing results and events not seen in campaign analysis. War games afford the players a large measure of control over events through their decisions. Usually, these decisions are not based on clear and complete understanding of all the facts, but rather on how the players view those facts through a cloudy and possibly incomplete frame of reference that is often distorted by the pressure of time limitations; in other words, the fog of war. In most cases, a decision once made cannot be recalled. Although the immediate outcomes of decisions are sometimes defined by mathematical models, their true effects ripple through all the subsequent game decisions and events. What and how much is lost in war game engagements and campaigns are far less important for interpreting the lessons of the game than how and why those engagements occurred as they did.

The end product of a classical campaign analysis can look very much like the play of a single war game, but it is a game in which all decisions are premade, poor decisions are self-correcting, uncertainty is eliminated, and chance is averaged away. Such analysis can provide important insight into the effects that systems and tactics might have in the circumstances assumed; yet, it has enormous difficulty in capturing the dynamic elements of warfare or in illuminating new facets of reality not already incorporated into its models. Because campaign analysis tends to focus on the quantifiable and reproducible, or on the mean rather than the outlier, it can provide little insight into why and how a brilliant hunch or incredible blunder, a bold gamble, or paralyzing indecision can turn carefully crafted plans into beautifully executed fiascoes, or *ad hoc* operations into decisive victories. There are no Chancellorsvilles in campaign analysis.

The true value of wargaming lies in its unique ability to illuminate the effect of the human factor in warfare. By their very nature, war games seek to explore precisely those messy, "unquantifiable" questions that campaign analyses ignore. War games can help the participants discover what they don't know they don't know. To do this, however, war games must sacrifice much of the mathematical structure of campaign analysis. A war game is not a mathematical experiment whose initial conditions can be re-created precisely and varied at will. The fundamental initial conditions of a game—the state of its players' knowledge base—changes with experience of the game and with replacement of individual players. Unlike campaign analyses, such parameters may not be varied readily over a wide spectrum.

Finally, because of the highly technical and quantitative demands of analysis, most of its practitioners remain civilians despite the increase in the number of military officers earning advanced degrees. The best analysts work closely with their military clients to keep their analyses militarily sound. Yet, it is rare to find an analysis in which all major decisions about force employment, missions, and operating concepts are made by active duty military personnel. Except for those games used by civilian analysts for strictly exploratory purposes, most military war games cast military officers in military decisionmaking roles. The differences in perspective and experience can sometimes result in significant differences between how a civilian might address a military problem and how the same problem is handled by someone in uniform. For similar reasons, having military officers play civilian roles can also be misleading.

Table 1 summarizes the comparison of campaign analyses and war games.

Comparison of Campaign Analyses and War Games

	Campaign Analyses	War Games
Objectives	Quantitative insights into feasibility, critical physical factors	Training; exploring decision processes
Event sequence	Precordained	Dynamic
Engagement outcomes	Typically expected value	Usually stochastic
Learning	Iterate until balanced outcomes	Few second chances
Interpret	Results	Processes
Participants	Primarily civilians with military advice	Primarily military in military roles

Table 1

War Games and Exercises

As indicated in earlier discussion, one can distinguish between war games and exercises in that the latter involves the actual movement and operation of military forces. (Command post exercises (CPXs) are an exception as they seldom involve ships putting to sea and are often similar to one-player games.) Exercises usually focus on training, with research interests largely centered on measuring operational capability. Wargaming has also been used traditionally as an aid for training, but it has become more and more popular as a tool for exploring decisionmaking processes. In addition, there are other differences between wargaming and exercises with regard to cost, time scale, flexibility, level of play, participants, and characterization of results.

Compared to exercises, war games are usually quite inexpensive. Actual game play seldom involves more than a few dozen officers, supporting technicians, umpires, and analysts over a period of several days. Even the planning and postgame analysis efforts, while lasting up to several months, involve only a relative handful of people. A major exercise, on the other hand, usually involves thousands of military and numerous civilian personnel. It also requires the operation, support, and maintenance of large numbers of ships, aircraft, and other equipment for periods of up to several weeks. As a result, the costs of a war game and an exercise that deal with the same general topic can differ by several orders of magnitude.

Because a war game does not employ actual forces, the advance of time during game play can be regulated to run much faster or much slower than real time. A game exploring strategy for a long war may have game time advance at a rate ten times that of real time. Alternatively, a training game may slow time down to allow players more opportunity to analyze and understand a tactical situation. Exercises, for the most part, must be played out in real time. Some time "jumps" between phases of an exercise are possible, but actual exercise activity can seldom be at anything other than real-time rates.

Because of the difficulties of staging large exercises, they typically must be played at the tactical level of the battle group or individual platforms. Some theater or major operational level exercises are played (for example, FLEETEX in the Pacific), but only infrequently. War games can be played easily at any level—up to and including that of the National Command Authority and global strategy and policy.

As a result of similar factors, active participation in exercises is usually restricted to military personnel and seldom includes high-ranking officers such as fleet or theater commanders. Political background and decisions are simplified and assumed away. In many war games, on the other hand, civilian players representing political authorities add their own, often quite different, perspectives to those of the military participants, with sometimes surprising and frustrating results. Unfortunately, the problem with high-ranking participation applies to war games as well.

Finally, although the results of war games are best characterized as qualitative, exercise results are usually considered to be quantitative. War game analysis documents decisions. Exercise analysis measures operational parameters such as system availability, speed of execution, numbers of targets engaged, or others.

Table 2 summarizes the comparison of exercises and war games.

Synthesis

This comparison of war games to exercises and analyses illustrates some of the similarities and differences among these three techniques for learning

Comparison of Exercises and War Games		
	Exercises	War Games
Activity	Operation of actual forces	Simulation of operations
Goals	Training; evaluating performance	Training; exploring decision processes
Cost	Expensive	Relatively inexpensive
Time scale	Real time	Adjustable
Flexibility	Resource-constrained; limited by availability of forces	Requires relatively few resources; may be played nearly anytime or anywhere
Levels of play	Primarily tactical with limited operational	Tactical, operational, strategic—all possible
Participants	Military; seldom highest ranks	Both military and civilian; seldom highest ranks
Results	Quantitative measures of performance	Qualitative assessments of decisions

Table 2

about defense issues. It also demonstrates that no one of these techniques is sufficient for obtaining a balanced view of the critical features of wartime reality.

Because actual fighting does not occur, none of these methods can truly capture many of the human elements of real combat. History is full of examples in which courage, fear, morale, and leadership provided the decisive determinants of defeat or victory. War games and exercises provide greater opportunities for exploring these factors than does analysis, but even their ability to re-create the stress of combat is limited. War game hours seldom exceed those of a normal working day, and players know that at the end of the week or month they will be back at their normal duty stations. Even exercises, in which physical conditions are more similar to those of wartime operations, can only reproduce a fraction of the real pressures involved when real weapons may be fired in anger.

Similarly, the effects of such weapons can only be partially accounted for in mathematical models. The results of engagements, whether in analyses, war games, or exercises, are assessed on the basis of such models supplemented with military judgment. Yet, because many modern weapons have not been used extensively in combat, these models and judgments are seldom based on a substantial body of hard data.

Finally, there is a tendency, most pronounced in analysis but extending to a degree to exercises and war games as well, to seek the truth of combat in "typical," "expected," or "likely" results. If history teaches us anything, it should remind us that in war the unexpected is commonplace. Too often,

highly detailed engineering or expected-value models obscure "the tremendous influence of luck in all warfare, especially naval warfare."⁶

There are many other artificialities and shortcomings of war games, exercises, and analyses.⁷ It is not the intent of this paper to catalogue all such artificialities. Rather, the goal is to suggest how such shortcomings can be overcome through the use of wargaming, exercises, and analyses to address those parts of the problem for which they are best suited and through the careful integration and interpretation of their results. Such a process has no magic formula; still, an example may demonstrate some of the possibilities.

A question of great interest to the Navy centers on whether aircraft carrier battle groups (CVBGs) can operate usefully and effectively in specific geographic areas when opposed by a particular type of Soviet submarine threat. Analysis can construct models and devise methodologies to describe the effectiveness of ASW barriers, direct CVBG defenses, and submarine attack capability. These models would be mathematical functions of sensor and weapon performance based on the best available theoretical and experimental data. Measures of effectiveness (MOE), such as the probability of an attacking submarine's being killed before firing at a carrier, can be defined and calculated on the basis of the assumed parameter values, and the effects of changes in those values can be quantified through the changes in the MOE. In this way, the analysis might identify critical physical parameters.

Informed by the results of the analysis and possibly using models adapted from it, the Navy could conduct a war game to explore the concept further. The game could include not only military commanders who might have to execute the operation but civilian decisionmakers as well, thereby yielding different points of view and value judgments. Such a game could shed new light on the political ramifications of deploying or not deploying CVBGs to the region, the availability of specific force levels under a variety of conditions, the rules of engagement under which those forces might have to operate and how those rules might change over time, and the possibly unexpected reactions of an enemy whose perceptions differ from our own. Similarly, the dynamic environment of a game may cause players to react differently than assumed by a static analysis.

However imperfectly large-scale political and operational decisions are modeled in a war game, they can sometimes have more important effects on the conduct and utility of an operation than the detection range of a sonar or the probability of accurate weapons placement given detection. Yet, without the understanding of the latter factors provided by good analysis, the decisions can be too abstract, too sterile, and their effects assumed rather than assessed. The gaming and analysis pieces must fit together.

An exercise can often help assemble the pieces and supply some missing ones of its own. The proposed operation could be practiced in the area of interest. Careful analysis and interpretation of exercise performance could

improve the parameter estimates for mathematical models. In addition, the physical execution of maneuvers and procedures required to carry out the operation can help identify important operational opportunities or problems that the analysis and war game may have downplayed or failed to consider.

Each tool strengthens and supports the others. Analysis provides some of the basic understanding, quantification, and modeling of physical reality that can underlie a war game. A game allows exploration of the implications that human decisionmaking has for the analysis, illuminates political or other nonmilitary assumptions and points of view, raises new questions, and suggests modified operational concepts. An exercise can test these concepts at sea with real ships, aircraft, and people; measure actual parameter values; verify or contradict key analytical assumptions; and suggest even more topics for gaming, analysis, and follow-on exercises, thus continuing the cycle.

Weaving war games, analyses, and exercises together in this continuous cycle of research allows each technique to contribute what it does best to the process of understanding reality. Only by integrating these techniques can the Navy hope to gain a better and balanced understanding of the potential reality of modern naval warfare.

Notes

1. Phillip Morse and George Kimball, *Methods of Operations Research* (Cambridge, Mass.: The MIT Press and New York: John Wiley & Sons, Inc., 1951), p. 1.
2. For example, see *Naval Operations Analysis*, 2nd ed. (Annapolis, Md.: The Naval Institute Press, 1977).
3. For further discussion of analysis see Morse and Kimball; George F. Brown, Jr., "Managing Analysis: The Client's Responsibility," *Naval War College Review*, May-June 1979; Gary D. Brewer and Martin Shubik, *The War Game: A Critique of Military Problem Solving* (Cambridge, Mass.: Harvard University Press, 1979).
4. For a thorough discussion on wargaming, see Peter P. Perla and Raymond T. Barrett, "What Wargaming Is and Is Not," *Naval War College Review*, September-October 1985.
5. For more on this subject see Frederick Thompson, "Did We Learn Anything from That Exercise? Could We?" *Naval War College Review*, July-August 1982.
6. Samuel Eliot Morison, *History of United States Naval Operations in World War II: Vol. I, The Battle of the Atlantic* (Boston, Mass.: Little, Brown, 1947).
7. In addition to the above, for further discussion, see Comptroller General of the United States, *Models, Data, and War: A Critique of the Foundation for Defense Analyses*, PAD-80-21, Report to Congress (Washington: 1980).



Mine Countermeasures in Coastal Harbors: A Force Planner's Dilemma

Commander David C. Resing, U.S. Navy

Much has been written about the power projection and sea control functions of the 600-ship navy; yet a small but vitally important aspect of accomplishing this strategy is largely ignored by force planners. The naval mine, as an offensive weapon used against U.S. ports and harbors, could have a disastrous effect on the timely execution of a maritime strategy. The task of the force planner is to assess the risk that this threat presents and reduce the level of risk, through force development, to an acceptable level. This article will address the mining threat to U.S. harbors and ports, summarize the current and proposed forces available to counter that threat, explore available alternatives, and make specific recommendations to the force planner for improvement of U.S. capabilities to counter the threat of mining.

The Threat

The Soviet mine warfare threat is no secret. Almost every article concerning mine warfare or mine countermeasures begins with a discussion of Soviet mining capabilities. With over 400,000 mines in the Soviet and Warsaw Pact countries' inventories and an extensive capability to lay them, it is not a threat to be taken lightly.¹ In support of an East-West war, essential elements of the Maritime Strategy are to deploy naval forces early and to reinforce and resupply Europe. Most of the supplies destined for Europe will come by sea from U.S. east and Gulf coast ports. Approximately 70 percent of the peacetime U.S. maritime commercial tonnage flows through a handful of harbors and waterways. The blocking in or out of ships at such terminals as

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New York Harbor, New Orleans, the Houston port complex and the Delaware and Chesapeake Bays would be sufficient to cause immediate and severe military and economic distress.² An even more critical and disastrous strategy stopper would be the mining of military bases at Hampton Roads, Kings Bay, Charleston, San Diego, and Puget Sound. As a prelude to hostilities, the value of mining those areas is considerable and, in effect, would be a preemptive strike that would effectively delay the maritime strategy of early deployment. The Soviet threat, coupled with U.S. vulnerabilities, is especially alarming in view of the results of the "Solid Shield" fleet exercises in 1979 and 1980 when all the resources the U.S. Atlantic Fleet could bring to bear could not open one east coast port in any acceptable period of time.³

Current Mine Countermeasures Forces

To counter the mining threat, the United States has limited mine countermeasures (MCM) forces. The current frontline U.S. MCM force consists of twenty-one oceangoing minesweepers (MSO) and twenty-three helicopters.

The twenty-one MSOs in the inventory are all 1950 Korean War vintage ships, three of which are now on "active duty" with the other eighteen attached to the Naval Reserve. They are scattered throughout U.S. naval ports with two, at the most, being assigned to a geographic region. These ships are antiquated, unreliable, and offer only a marginal MCM capability.

Airborne Mine Countermeasures (AMCM) capabilities reside in three squadrons (two operational, one training) of RH-53D minesweeping helicopters based in Norfolk, Virginia. Being air deployable by C-5A aircraft, these active duty squadrons are this country's primary rapid response mine countermeasures capability. For the purpose of this discussion, these aircraft and their associated MCM systems are capable of sweeping mines and conducting minehunting operations in waters between 30 and 300 feet in depth. Their major limitations are the inability to classify, identify, or neutralize mine-like objects and a very limited capability for night operations.

An important but little known mine countermeasures capability resides in the U.S. Navy's Explosive Ordnance Disposal (EOD) community. In a minehunting role, MSOs and airborne MCM helicopters are limited to locating mine-like objects. The only capability in the U.S. Navy today to classify those objects as mines or non-mines, to identify the type of mine and to neutralize it, resides in the EOD diver. Furthermore, these divers have the added capability of exploiting hostile mines through recovery and gathering intelligence. This MCM capability is available in two Explosive Ordnance Disposal groups; one located in Fort Story, Virginia and the other at Barbers Point, Hawaii. Each group has about eighteen shore-based

detachments located at various naval air stations, naval weapon stations, and naval bases. EOD detachments are responsible for their respective areas and respond to problems such as weapons transfers or bomb disposals. Each group also has a Training and Evaluation Unit and several Mobile Units (two in the Pacific Fleet and three in the Atlantic Fleet) to provide fleet, force, and area commanders with professional, deployable assets in direct MCM support roles.

These EOD, MCM detachments will soon be working with a new underwater breathing apparatus, designed for the MCM mission, that will increase their maximum operating depth to 300 feet. Advanced, remote-controlled underwater vehicles and new hand-held diver sonar devices are also being developed to assist the EOD diver in his MCM role.

Programmed Mine Countermeasures Forces

Several programs are under development to replace or enhance existing MCM assets. These include replacements for the current fleet of MSOs, the creation of Reserve airborne mine countermeasures squadrons, the Craft of Opportunity Program (COOP), and a Reserve Explosive Ordnance Disposal program.

Current plans are to replace the twenty-one MSOs with a new "Hi-Low" mix of MCM-1 class minesweepers and the newly designed smaller minesweeper-hunters (MSH-1), by 1990. This proposed "Hi-Low" replacement mix of nine MCM-1s and fifteen MSH-1s would provide an enhanced MCM capability. Unfortunately, the program is running into severe difficulties. The five MCM-1s currently under construction have several serious design problems, and the MSH-1 is barely past the design stage. Unglamorous projects, like "defensive" mine countermeasures projects, are often early casualties in shrinking defense budgets; indications are that these programs may suffer from current budget cuts and may not reach their expected maturity.

The airborne mine countermeasures forces are beginning to be replaced by more capable MH-53E aircraft. As the RH-53D aircraft are replaced, they will be transferred to the Naval Reserve Air Force for the creation of Reserve airborne mine countermeasures squadrons in the late 1980s. When the transition is complete, one active duty and one Reserve squadron will be located on each coast.

The Craft of Opportunity Program is the newest addition to the U.S. MCM forces. This Reserve program consists of equipping yard patrol craft and suitable commercial fishing trawlers (i.e., nonmagnetic hull and sufficient working area aft) with precise, small area navigation systems and towed, high resolution, side-scan sonar to locate and plot mine-like objects. A total of twenty-two COOP trainer units will be established, seventeen in

ports on the east and Gulf coasts and five on the west coast. Each COOP unit will have four Reserve crews assigned to a training craft in peacetime with each crew operating the ship one weekend per month. Upon mobilization, additional craft will be taken from commercial sources and outfitted with off-the-shelf sonar and navigation equipment to provide three additional COOP craft in each of the ports. COOP's primary peacetime mission is to carry out route survey, which consists of surveying with side-scan sonar and recording the positions of all mine-like objects in predesignated channels. In time of war, only those objects in the routes that stand out as "new" will need to be avoided or neutralized. COOP's wartime mission is to provide port reconnaissance and to achieve a port breakout capability. Some of the craft will also be equipped with bottom trawl nets for a limited minesweeping capability. Six COOP trainer units were established in 1986 with the remaining units being scheduled for activation through 1990. Once a unit is established, it will require at least two years of Reserve training before it becomes an effective MCM asset. A major limitation is that, although the COOP craft have a minehunting capability, they can only locate mine-like objects and have no capability to classify, identify, or neutralize suspected items.

The Naval Reserve Explosive Ordnance Disposal (NREOD) program is designed to provide an augmenting force of Reserve EOD assistants to the two Explosive Ordnance Disposal groups. The EOD assistant is an individual who has been qualified in basic scuba diving, ordnance location and recognition, demolition, and technical support of EOD activities. These personnel are not trained or qualified to perform the more demanding ordnance render-safe procedures required of fully qualified Explosive Ordnance Disposal technicians. In an MCM environment, they do have the capability to classify previously located objects as mines and to explosively countermine them if necessary. This capability will exist in eight Naval Reserve Explosive Ordnance Disposal Mobile Units. The first two units are expected to be commissioned in late 1986 with the remaining units being commissioned through 1990. Once a unit is manned and commissioned, it will experience at least a two-year training period before its personnel are qualified as EOD assistants and can be considered as viable MCM assets.

Force Planning and Assessment

The gap between the possible threat and the current U.S. mine countermeasures capabilities has created a significant window of vulnerability. Although new assets are being procured, they generally replace aging systems that are obsolete and are being withdrawn from service. The new capabilities that are being established reside primarily in the Naval Reserve. The force planner is faced with a challenge in the allocation of scarce resources to counter this perceived threat. Several alternatives are available and deserve review.

The first alternative is not to allocate any resources and to give only a minimum of attention to the mine warfare threat against U.S. ports. This would be predicated on the assumption that the threat, in relation to other threats, is minimal and not deserving of much attention or resources. It could be argued that the United States is a long distance from the Soviet Union and it would be extremely difficult, as well as a misuse of Soviet resources, to mine U.S. ports. The number of mines required to close a port would far exceed what a single submarine could carry; the successful covert mining by surface ship, although a possibility, would also be remote. With these considerations in mind, it is easy to argue that resources that would go into building a defensive MCM capability would be more effectively spent, and have more deterrent value, if invested in offensive platforms and capabilities.

It can also be argued that these considerations make the risk so small that it is acceptable. Upon closer examination we can counterargue that although the probability may be small, the risk is not acceptable. The opportunity to sink or damage a U.S. SSBN or aircraft carrier early in a conflict could make the use of mines especially attractive to the Soviets. Because their use against U.S. ports is considered so remote, and few MCM forces exist, the use of mines could be an effective and inexpensive means of foiling the Maritime Strategy. In addition, an effective minefield does not need to be laid as long as the perception of a threat exists. The reaction to the 1984 suspected mining of the Red Sea is a notable example. Large, impressive warships are of little value if they are denied access into or out of homeports. The threat posed by a Soviet offensive mining campaign against the United States, although perhaps perceived as small, creates an inviting opportunity to the bold and a level of risk that is unacceptable. Ignoring the MCM vulnerability could have serious, negative, long-range implications. Not only does this option guarantee a further degradation of mine countermeasures assets, it further decreases the level and quality of personnel who are familiar with, and experienced in, the conduct of this type of warfare.

The second alternative is to expand MCM forces. By building more MCM-1 and MSH-1 class ships and increasing the number of minesweeping helicopter squadrons, the capability of the U.S. MCM effort can be greatly enhanced. Large numbers of personnel will be trained and qualified to plan and conduct MCM operations, and sufficient forces will be built to eliminate any risk of hostile mining. This is an attractive alternative but quite unrealistic at a time when the military is facing stringent budgets. Simply, the fiscal climate does not encourage a major MCM building program, and furthermore, the U.S. Navy is experiencing difficulties in manning its 15-carrier battle group, 600-ship navy. Expanding the MCM forces would only exacerbate an already serious manning problem. Although the mine countermeasures forces may be increased to some degree, available peacetime resources will not be available to build the added conventional surface and air MCM forces required to eliminate the potential threat.

Somewhere between doing nothing and an all-out effort lies the third and most attainable and realistic alternative. The force planner must look at existing forces, evaluate their individual strengths and weaknesses, and encourage a more effective integration of existing assets to reduce the level of risk to acceptable levels. In analyzing existing forces and their tactics, it can be seen how the integration of forces can improve overall effectiveness. Existing MSOs have the minehunting capability to locate underwater objects but cannot *positively* classify, identify, or neutralize. Similarly, minesweeping helicopters are limited in the minehunting role to locating and marking mine-like objects and have no internal capability to classify, identify, or neutralize located mines. The developing Craft of Opportunity Program experiences the same limitations. Unfortunately, most discussions concerning mine countermeasures operations or planning are limited to the role of surface ships and helicopters. Although Navy Explosive Ordnance Disposal personnel have an extremely limited location capability, they alone possess the ability to classify, identify as to type, and dispose of mines and other underwater ordnance. The Explosive Ordnance Disposal diver has depth restrictions, but his capabilities are more than sufficient to meet the majority of the port and coastal mining threats. The EOD capability to recover and exploit enemy mines is a vital capability that can provide invaluable intelligence to the planners of an MCM operation. By integrating Reserve EOD personnel with COOP units and supporting them, as required, with active duty EOD personnel, the efficiency and effectiveness of that program can also be greatly enhanced.

The development of plans that integrate all existing forces can also increase overall effectiveness and capability. For example, in an MCM scenario, AMCM or COOP assets can utilize their towed sonar to rapidly locate and plot mine-like objects. These plots can be prosecuted by surface minehunters (MSO, MCM-1, or MSH-1), utilizing their own sonar for more precise location and classification. Explosive Ordnance Disposal divers can then locate, identify, and recover or dispose of the mine. Mines located in waters beyond the diver's depth capability would be prosecuted using underwater remote-control operated vehicles. Each MCM asset should be used in the role it is most effectively configured to perform so that individual limitations are minimized or eliminated. In a worst-case scenario, the mission could be accomplished by using only COOP and EOD assets.

The primary problem in developing this alternative is educating planners as to the assets available and their accompanying strengths and weaknesses, and to develop a joint working relationship between the various organizations. Furthermore, the individual types of MCM assets must be perceived and operated as part of a team effort. This alternative presents the force planner with an entirely different set of circumstances. Instead of greatly expanding the number of force assets, he must be concerned with modernizing and

integrating existing assets for quantitative improvements. This alternative may not eliminate the degree of risk completely, but it is the most realistic in terms of achievement and maximizes the use of existing and programmed MCM assets within current budgetary constraints.

Conclusions and Recommendations

The U.S. capability to conduct mine countermeasures operations in response to the mining threat against American ports and harbors is adequate if properly utilized. To maximize the effectiveness of limited numbers of MSOs (and their replacements) and airborne MCM assets, they must be combined with the capabilities of other MCM assets. The individual efforts of the existing mine countermeasures forces are not sufficient to neutralize the threat, but the synergistic effects of combined and supporting operations can provide a viable and inexpensive alternative for countering the mining threat. If the threat is to be met using existing forces, a number of actions must be taken to create a force-wide MCM capability.

First, current formal courses of instruction concerning mine countermeasures planning and operations must be reviewed for completeness and accuracy. The individual capabilities and limitations of all MCM assets must be addressed. This should include the role of Navy Explosive Ordnance Disposal personnel and the developing Craft of Opportunity Program. There is a general lack of knowledge and misunderstanding as to how EOD forces can be used, and it is essential that their unique capabilities be included in the planning and operational phases of mine countermeasures exercises and operations.

Secondly, and in conjunction with an increased emphasis on including EOD capabilities in formal training courses, EOD officers should be made a functional part of staffs that are planning and conducting MCM operations and exercises. Experienced EOD officers have a good knowledge of mine countermeasures operations and how EOD personnel can assist in the overall MCM effort. They also have specialized knowledge concerning the technical aspects of both domestic and foreign underwater ordnance. Most importantly, the EOD staff officer can provide the commander with invaluable information to ensure the most effective utilization of, and prevent possible misuse of, assigned EOD forces. Demands for the services of EOD officers are not sufficient to require their permanent assignment to most active or mobilized staffs; however, they could be assigned for temporary additional duty (TAD), when required, from EOD Group or Mobile Unit assets.

Thirdly, officers should be temporarily exchanged between the various types of MCM platforms, allowing officers assigned to MCM ships to plan and operate with EOD and helicopter minesweeping forces during operations and exercises. Similarly, EOD officers and pilots can be assigned to plan and

participate in each other's phases of MCM operations. Only after the various components have operated with each other out of their ships, helicopters, and rubber boats can they fully understand and appreciate individual strengths, weaknesses, and capabilities. This interchange of personnel should eventually lead to a better understanding of the various forces and contribute to their future operating effectiveness.

Fourth, the use of multiple MCM assets in fleet exercises should be expanded. MCM operations must be included in as many fleet exercises as possible and all MCM forces incorporated into the scenario. The forces should work in combined and mutually supporting operations to the maximum extent possible. Post-exercise lessons learned should be incorporated into tactical memos and naval warfare publications to ensure that the various MCM components receive the benefit of joint exercises.

Fifth, ensure that various MCM assets have compatible navigation and communication systems for coordinated and integrated operations. Navigation systems used to mark coordinates of mine-like objects must be mutually compatible so that one type of asset can quickly reacqnire and prosecute a contact found by another type of asset. For example, by having compatible navigation and plotting systems, a COOP craft with EOD divers could locate and prosecute a contact found by an AMCM helicopter the day before. The other essential half of this effort is that all assets have compatible secure and unsecure communications systems to coordinate the overall MCM effort.

Lastly, active duty and Reserve Explosive Ordnance Disposal forces should be incorporated into the Craft of Opportunity Program. COOP provides a relatively inexpensive alternative to more MCM ships and squadrons for U.S. coastal mine countermeasures operations. Without COOP, the best that current MCM forces can expect is sequential operations of ports and harbors suspected of being mined and loss of valuable time transiting scarce MCM assets to locations where they would be needed. If managed and utilized properly, COOP can provide an effective and continuous MCM capability in assigned areas. The major drawback is the substantial limitations inherent in COOP. Without the ability to prosecute individual mine-like contacts, the best COOP can accomplish is to mark each rock and junk pile that has the same sonar image as a mine. By incorporating the resources of Explosive Ordnance Disposal, COOP's capabilities are greatly expanded. In a worst-case scenario, combined COOP and EOD forces could possibly perform the MCM mission alone.

The major problem is how best to create a suitable interface between COOP and Explosive Ordnance Disposal assets. Active duty EOD forces do not have the capability to simultaneously support all of the COOP units, and the problem would be multiplied if COOP forces were mobilized and each unit expanded to four boats. An acceptable solution is to incorporate Navy Reserve Explosive Ordnance Disposal personnel into the COOP mission.

Detachments from the NREOD Mobile Units would be assigned to work with designated COOP crews during their Reserve training periods. Although NREOD personnel are generally EOD assistants and are not authorized or trained to perform the delicate render-safe procedures, they have the diving, ordnance recognition, and underwater demolition capabilities required to verify contacts and countermeasures if necessary. Active duty Mobile Units would have fly-away MCM detachments to support a number of COOP and NREOD locations in cases where more specialized assistance would be required. The COOP/EOD Interface table proposes integration of COOP and EOD forces. The system would have to be implemented in two phases with active duty EOD Mobile Units providing the majority of COOP support until the assigned NREOD unit could take over the responsibility.

This concept has a number of advantages. If fully implemented, the proposal would give most U.S. ports a continual MCM capability independent of minesweepers or airborne mine countermeasure forces. Reserve personnel, both COOP and EOD, would be training in the same areas where they would be stationed, if mobilized. Selected NREOD detachments could be assigned and trained for a specialized mission, thereby increasing their overall effectiveness. Navy Explosive Ordnance Disposal personnel have had years of experience with small area navigation systems and side-scan sonar similar to those used by COOP. By working together, this information can be passed on, reducing COOP's learning curve significantly. Joint operations can be used to develop tactics that would also be valuable for the identification of problems dealing with logistics, mobility, and operations.

By implementing these recommendations, the United States could achieve a viable coastal MCM capability at a minimal cost with an acceptable level of risk. Each of the MCM forces must reassess their overall mission to ensure that their contribution is in support of the Maritime Strategy. This is especially true in the Explosive Ordnance Disposal community where MCM is only one of several mission areas it is required to support.

The mining threat to the coastal United States cannot be ignored. The country can little afford to solve it with a massive increase of forces when the current and programmed forces can reduce the risk considerably through joint planning and combined operations. To achieve this, a thorough understanding of each other's capabilities is essential. Resources simply are not available to build the optimum MCM force. It is only reasonable that planners take the existing and programmed forces and use them to their maximum effectiveness through innovative techniques in order to achieve the capability necessary to minimize the mining threat to U.S. coastal harbors.

COOP/EOD Interface		
Support Unit	NREOD Mobile Unit	COOP Unit
EODMU ONE Barbers Pt., HI	NREODMU 9 (FY 87) Barbers Pt., HI	Boston (FY 87)
EODMU TWO Fort Story, VA	NREODMU 12 (FY 88) Staten Island, NY	New London (FY 88) Baltimore (FY 87) New York (FY 87) Earle (FY 87) Delaware Bay (FY 87)
EODMU THREE San Diego, CA	NREODMU 7 (FY 86) San Diego, CA	Long Beach (FY 85)
	NREODMU 11 (FY 88) Seattle, WA	Puget Sound (FY 85) Astoria (FY 85) Valdez (FY 88)
EODMU SIX Charleston, SC	NREODMU 8 (FY 86) Norfolk, VA	Sunny Point (FY 86) Morehead City (FY 87)
	NREODMU 10 (FY 87) Charleston, SC	Savannah (FY 85) Kings Bay (FY 85)
	NREODMU 14 (FY 89) Pensacola, FL	Pensacola (FY 86) Gulfport (FY 89) Lake Charles (FY 89) Galveston (FY 85) Corpus Christi (FY 89)

Note: Numbers in parentheses indicate fiscal years of units' activation or commissioning.

Table

Notes

1. James D. Hessman, "In Search of 'The Weapon That Waits,'" *Sea Power*, July 1984, p. 40.
2. L. Edgar Prina, "Deep Threat: The Navy is Flunking Higher on Mine Warfare," *Sea Power*, May 1983, p. 41.
3. Cyrus R. Christensen, "A Minesweeping Shrimp Boat? A What?" *U.S. Naval Institute Proceedings*, July 1981, p. 109.



Interwar Innovation in Three Navies: U.S. Navy, Royal Navy, Imperial Japanese Navy

Thomas C. Hone and Mark D. Mandeles

In 1919, three major naval powers—Great Britain, Japan, and the United States—faced two major challenges: integrating new technology into their doctrines and organizations, and coping with reduced naval expenditures and arms treaties that came as a postwar reaction to armaments spending. In effect, money available for naval development and construction was declining at precisely the moment it was needed to adapt new weapons and equipment to naval use. Though World War I had ended, naval rivalry had not, and officers in all three navies understood that their organizations needed to progress technologically and tactically. To do so, each navy would have to innovate and foster tactical and doctrinal change while surviving on limited funds. In this article we will examine the way the three navies responded to the challenges and opportunities posed by one major new technology, airpower. Of the three major navies, only two—the U.S. and Japanese—fully developed airpower at sea, despite the fact that it was the Royal Navy which led in this field in 1919. Through a comparison of the naval aviation policies of these three navies, we also will examine a basic and deeper issue: the relationship of organizational structure and behavior to technical and tactical innovation in complex military organizations. Put another way, how do some military bureaucracies innovate successfully? We will argue that innovation depends on a clearly articulated demand for a particular tactic or weapon; procedures to evaluate experience with, and alter, the innovation; and organizational advocacy. A comparison of these three navies—British, Japanese, and American—sheds some light on this important and interesting subject.

The navies of Japan, Great Britain, and the United States were chosen for analysis because they faced a common problem—defining the role of aviation

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in warfare. In aviation, the menu of options was large and military budgets were limited. There was no question in the three navies that aviation merited serious, long-term investments. World War I experience, shared by the Royal Navy with the U.S. Navy and observed by Japanese officers, had shown the value of airships and blimps, seaplanes, land-based multiengined bombers and scouts, and aircraft carriers. Younger officers with aviation experience pressed superiors to make commitments in several areas simultaneously. Superiors, faced with reduced resources and the demands of aviators—as well as of submarine advocates—had to decide how to organize naval aviation. On their decisions would turn the outcome of much of World War II at sea.

The Royal Navy: Ups and Downs

At the beginning of 1918, the strength of the Royal Naval Air Service (RNAS) was approximately 3,500 aircraft (over 1,000 of them were seaplanes) and several dozen large airships, maintained and flown by nearly 55,000 officers and enlisted personnel stationed at over 100 bases in England and Europe.¹ Royal Naval Air Service leaders were optimistic about the use of airpower to defeat their adversaries. A 200-plane raid on the German fleet in Wilhelmshaven was planned in early 1918 but was never staged. Nevertheless, RNAS organization, training, and equipment deeply impressed both U.S. Navy air units and Japanese Navy observers. By 1919, the Royal Navy had its first aircraft carriers and seaplane tenders, with three additional carriers being converted or under construction. But the British lead, commanding though it seemed to its allies and postwar rivals, was already slipping.

The roots of postwar RNAS decline stretch back to August 1917 when the War Priorities Committee, chaired by Jan Smuts, recommended that existing British Army and naval air assets be merged under the control of a separate air ministry. The committee's report, which was very influential, argued: "Unlike artillery an air fleet can conduct extensive operations far from, and independently of, both Army and Navy. As far as at present can be foreseen there is absolutely no limit to the scale of its future independent war use. And the day may not be far off when aerial operations with their devastation of enemy lands and destruction of industrial and populous centers on a vast scale may become the principal operations of war, to which the older forms of military and naval operations may become secondary and subordinate."²

In April 1918, the naval and army air arms were separated from their services and combined in the Royal Air Force (RAF). The RAF's first operational chief, General H.M. Trenchard, was later appointed head of the Inter-Allied Independent Air Force. In February 1919, General Trenchard was made chief of the air staff, a post he held for ten years. He was an aggressive competitor for scarce resources, shielding the fledgling RAF from

efforts by the army and Royal Navy to regain the air assets they had given away under the stress of war. Trenchard's doctrine of airpower played on the mismatch between British resources and imperial defense commitments. As he argued in 1921,

- (a) The primary function of the Air Force in the future would be the defence of the British Isles from invasion by air from the continent of Europe. This defence would largely take the form of a counter-offensive from the air
- (b) Certain responsibilities at present assigned to the Navy and the Army could be more economically and just as adequately carried out by Air units
- (c) . . . there should be more use made of the Air Force as an independent arm used not as an auxiliary, but as a substitute for naval and military forces.³

In short, the RAF could do what the other services had been doing but do it cheaper.

Trenchard's argument persuaded civilian policymakers, who approved the centralization of decisionmaking in the RAF for aircraft design, maintenance, procurement, pilot training, and development of doctrine. This organizational arrangement had two consequences for the Royal Navy's Fleet Air Arm (FAA) and evolving carrier aircraft force. First, because the FAA had little or no say in the policy governing flying boats or land-based aircraft employed for naval reconnaissance, it became very much a carrier force. Second, it took years to develop a cadre of senior Royal Navy officers with flight experience. When the RAF was created in 1918, all the RNAS pilots were transferred to RAF units. By 1926, the Royal Navy had persuaded the RAF that seventy percent of serving FAA pilots should be naval officers, but RAF pilots were entitled to one-half of the wing and squadron commander positions on Royal Navy aircraft carriers. As a result, a Royal Navy officer did not command a Fleet Air Arm flight (part of a squadron) until 1927. That same year, the U.S. Navy set aside carrier commands for officers qualified as pilots or observers. As Till noted, "Whereas by 1926 the U.S. Navy had one vice-admiral, three rear-admirals, two captains and 63 commanders who received flying pay, the Royal Navy had only one rear-admiral and a few commanders and junior captains by the start of the Second World War."⁴

Till concluded that FAA procurement suffered because the RAF—responsible for all aircraft procurement—showed little concern for the particular problems of naval aircraft design; the Royal Navy's approach to carrier aircraft tactics was often flawed (for example, the Royal Navy did not assume that its fighters would have to face land-based opponents); and the system of aircraft procurement did not automatically feed the Navy's operational experience into the RAF's design process.⁵ The Royal Navy complained that because the RAF was not quick to produce aircraft to the specifications the Navy presented, the aircraft were obsolete when delivered. The RAF countered by charging that the specifications submitted by the Royal Navy were often impossible to realize given the general shortage of

procurement funds. Both sides expressed reasonable points of view, but as Till also noted, both overlooked the need to experiment in a situation where there were many options and little information to judge among them: "the quality of naval aviation was much bound up with the quantity of aircraft involved . . . low numbers made it difficult for the British to launch massed attacks of the kind used by the U.S. and Japanese navies to convince the sceptical that air power could revolutionize war at sea. Having too few aircraft, the FAA was less able to make the dramatic impressions required"⁶

The Royal Navy was caught in a vicious cycle: not enough planes meant accepting utility types; the poor performance of these FAA planes could not demonstrate a need for greater numbers of better aircraft and thus reduced the status of the FAA as a fighting arm. These conditions which made flying for the Royal Navy a less attractive career option, also meant less talented officers went into the FAA, further reducing its effectiveness, and making its demands for more and better aircraft seem unjustified. One small but devastating consequence of the FAA's inability to obtain high performance aircraft was the acceptance of an ineffective arresting gear on Royal Navy carriers. Early arresting devices often damaged aircraft and led to a search for alternate methods of landing aircraft. Experiments in the early 1920s showed that by steaming into the wind at high speed, carriers could safely recover aircraft without using an arresting gear system. However, recovery of aircraft by steaming into the wind was slower than by using an arresting gear and gradually lost effectiveness as aircraft weights and landing speeds increased. The absence of an arresting gear system meant that British carriers could not demonstrate their true military potential as platforms for mounting larger strike missions with high performance aircraft.

Royal Navy officers, however, were not without their share of blame for failing to exploit the potential of naval aviation. As Till discovered, after 1919, "no deep study of the future role of naval aviation was undertaken because no specific Naval Staff institution or officer was directly responsible for providing one."⁷ Before 1931, for example, the Royal Navy carriers stationed in the Atlantic and Mediterranean were customarily assigned to scouting forces or tied to battleship formations. Their role was strictly auxiliary to the Royal Navy's gunnery and reconnaissance units. The Navy also had a misplaced faith in the effectiveness of antiaircraft gunnery and no confidence at all in bombing accuracy until the late 1930s.⁸ Thus, Royal Navy officers overestimated the power of defenses against carrier aircraft and underestimated the strike value of their own planes.

Further, the Royal Navy, secure in its lead in naval aviation, had stopped exchanging technical data on air operations, tactics, and aircraft and carrier design with the U.S. Navy in the early 1920s. It is ironic that, for some years, the American naval officers felt they were lagging in the development of

carrier aviation when, in fact, they were moving ahead. By 1929, the gap between the two navies was apparent to professionals on both sides when the U.S. Navy, with Royal Navy observers present, first used large carriers in the strike role in full-scale fleet exercises. The Royal Navy had more carriers (in 1930, the ratio was 5 to 2, not counting the experimental carriers on each side) but could not launch a larger, stronger aerial force. The strengths of U.S. Navy aviation provoked action by the Royal Navy to identify and redress its weaknesses.

In 1931 the First Lord of the Admiralty acted to strengthen the FAA by creating the position of Rear Admiral (Aircraft Carriers) and appointing to it R.G.H. Henderson, an officer of vision, energy, and persuasiveness. Given a mandate to refine and develop carrier tactics, the new command began to experiment with carriers operating in pairs. When FAA planes returned from missions, they were lowered from carrier flight decks to hangar decks for rearming and refueling. This process took time and made a lone carrier vulnerable to attack. By pairing carriers, the new command drastically reduced this vulnerability and actually freed more planes for strike missions.⁹ Exercises also showed the need for larger numbers of strike aircraft if carriers were to do more than simply scout for and protect the Royal Navy's battleships.¹⁰ The organizational result of those exercises was a renewed demand from within the Royal Navy to regain full control of carrier aviation, and some officers were eager to gain control of Coastal Command aircraft as well.

Beginning in 1936, the Royal Navy pressed hard to gain full, as against shared, control over the FAA from the RAF. This cabinet-level issue involved senior civilian and military officials in both the Air Ministry and the Admiralty. After a long debate, the Air Ministry finally accepted the recommendation of a special review committee and, in 1938, the Royal Navy gained real control over procurement, staffing, and training of the FAA.¹¹ But this administrative change was almost too little, too late. Roskill, for example, noted that the new naval air arm lacked officers at the level of commander and above, as well as enlisted technical specialists.¹² The U.S. Naval Attaché was, in Roskill's words, "right on the mark" when he reported in April 1938 that the FAA was not nearly as effective a force as the rest of the British Navy.¹³ At the same time, the records suggest that in areas such as ship and aircraft design, there was already open and useful cooperation between Air Ministry and Admiralty specialists. Carrier *Ark Royal*, designed in 1935 and a contemporary of the U.S. Navy's *Enterprise*, was a successful ship and was referred to by her Royal Navy designer as "a good example of coordinated defense."¹⁴ Carrier aircraft designs were not nearly so successful, but the reason had less to do with the level of interservice cooperation than with the scarcity of manufacturing resources; the modernization of the RAF's Fighter Command had higher priority.

Though Roskill and Till have suggested that prewar exercises employing carriers, aircraft catapulted from battleships and cruisers, and RAF planes assigned naval missions, produced very mixed results, the fact remains that Royal Navy fleet aviation eventually performed impressively during World War II. The problem was that prewar experience led the Navy *away* from a conception of aircraft carriers as strike weapons and *toward* a doctrine which stressed how carriers could support gunfire ships. Such support would include spotting, scouting, attacks on enemy units at anchor (where Royal Navy battleships could not reach them), and torpedo assaults on the enemy battle line to force it to face a decisive showdown with the Royal Navy's battleships. As Friedman observed, the impact of prewar exercises was reflected clearly in Royal Navy carrier designs: *Illustrious*, which followed *Ark Royal*, carried less than half the latter's air complement but was armor sufficient enough to accompany battleships into areas where it would be threatened by enemy land-based aviation.¹⁵ Much more of *Illustrious'* tonnage was put into passive defense measures than was put into contemporary U.S. Navy and Japanese carriers. This approach, which made sense in the Mediterranean, was a mistake in the Pacific because Japanese carriers had so many more strike aircraft with significantly greater ranges than their British counterparts, that they could swamp British combat air patrols and antiaircraft guns before British aircraft could launch an effective attack.

In sum, Royal Navy aviation suffered early in World War II because during the interwar years there was only a modest development effort and no organization to identify doctrinal errors. What saved the British Navy was that its European enemies had done even worse. Faced by Japanese airpower at sea in 1942, however, the British Navy was soundly defeated. Under the pressure of war, the Royal Navy quickly embraced the escort carrier, night operations, and advanced aircraft. Naval aviation, though not seen as the premier arm of the Royal Navy in 1939, was able to take that role eventually because senior officers—even those not trained as aviators—reevaluated doctrine and recognized the importance of carriers. By 1943 the Royal Navy also began to get sufficient quantities of pilots and planes.¹⁶

The Imperial Japanese Navy: Fits and Starts

Officers in the Imperial Japanese Navy were quick to comprehend the potential of naval aviation. The Imperial Navy units which besieged the German naval base at Tsingtao in 1914 employed seaplanes carried by a merchant ship converted for scouting and bombing.¹⁷ The first naval air group was created in 1916; the first aviation experimental station was set up in 1918, and it constructed its first wind tunnel the next year.¹⁸ In 1919, in its annual maneuvers, the Imperial Navy deployed its whole force of seaplanes as effective scouts.¹⁹ In spring of 1921 the RAF and Royal Navy cooperated in

dispatching a special mission to Japan to assist the Imperial Navy in modernizing its aerial forces and training programs. Both the Commander in Chief, Combined Fleets and the Chief of the Imperial Navy's General Staff took a strong interest in using British assistance to (as Ferris put it) "leap from 1914 to 1919 in a single bound."²⁰ The British mission advised the Imperial Navy on the completion of its first carrier (*Hosho*, launched in 1921) on flight training procedures and on contemporary aircraft design.

By the end of 1921, Imperial Navy seaplanes were spotting gunfire and shielding their battleships from enemy aircraft.²¹ The Japanese Government established the Advisory Committee for Aeronautics in 1923 and an aeronautical laboratory in Tokyo Imperial University in 1924.²² The Imperial Navy financed airframe and engine advances. By 1928, Mitsubishi was producing about 100 aircraft annually and Aichi Tokai, nearly 70 seaplanes and flying boats.²³ In 1926 the Japanese Naval Air Service had almost 250 planes, "perhaps a third of which were seaplanes and flying boats. It also had some 90 training aircraft, around 200 obsolescent aircraft of various models in reserve, and over two dozen foreign models for design copying purposes."²⁴ This total of approximately 540 planes compared with a figure of about 890 for the U.S. Navy and less than 150 for the Royal Navy, although the Royal Navy had more than double the number of planes on carriers at sea than either of its rivals.

In October 1927, the Imperial Navy's annual maneuvers were deliberately designed to test the potential of major land- and sea-based air squadrons to affect the outcome of a decisive fleet confrontation. The converted battle cruiser *Akagi* was maneuvered as a carrier even though it was not yet complete. The influence of these exercises on Japanese naval aviation was significant. One source has credited them with provoking a major reorganization of Imperial Navy aviation.²⁵ Another source has suggested that the success of the Japanese Army's air organization was, in fact, the spur to change within the Imperial Navy.²⁶ Whatever the cause, in 1928, Imperial Navy aviation, which had been organized as part of the Navy's Controller office, was made a separate bureau, "directly responsible to the Minister of Marine."²⁷ The bureau's first director was Admiral Y. Yamamoto (not the Isoroku Yamamoto who commanded the Combined Fleet in 1941) who had won the annual maneuvers the previous autumn. By 1929 Admiral Y. Yamamoto was commanding all carrier and most land-based naval aviation. Later that same year he was appointed chief of the Combined Fleet.²⁸

The creation of a separate aviation bureau was crucial to the progress of Imperial Navy aviation for two reasons. First, before 1928 aviation had been organized around the various naval aviation stations which, in turn, were under the authority of the chiefs of the major naval districts.²⁹ The 1928 reorganization placed the various branches of naval aviation under one central administration with clear budget authority. In the bureau, the major

design, procurement and training issues could be resolved. The result was further Imperial Navy-wide interest in aviation. At the end of 1930, for example, Navy fleet exercises emphasized the use of naval aircraft in a variety of roles, including carrier forces attacking defended targets on land.³⁰ Second, naval aviation was the Navy's hedge against the naval arms limitation agreements. At the London Conference of 1930-31, the Japanese delegation requested that the parties to the Washington agreements of 1921 agree to a change in the battleship tonnage ratio from 10 to 6 in favor of the United States and Britain, to a less favorable ratio of 10 to 7. The U.S. and British delegates refused to accept the new ratio, so the Imperial Navy mounted several efforts to overcome this apparent imbalance: one was a submarine building program; the second was the expansion of land-based naval aviation.³¹

Japanese naval officers returned from London committed to enlarging their navy's aviation programs. At the end of 1931, Imperial Navy leaders decided to overcome the U.S. Navy's lead in numbers (1,200 vs. less than 800) and quality of aircraft. As part of this effort, the Imperial Navy's bureau of aviation adopted, in 1932, an "Aviation Technology Independence" program to force the rapid development of the Japanese aircraft industry.³² The responsibility for this program was given to Captain (later Admiral) Isoroku Yamamoto who had been appointed Chief of the Technical Division of the Imperial Navy's aviation bureau after his return from the London conference. At Yamamoto's urging, the Imperial Navy sponsored a competition for design of a long-range twin-engined bomber capable of carrying a large torpedo. As the designer of the famous Zero fighter noted in his memoirs, the catch-up program worked. Japanese aircraft bested Chinese opponents after war between the two countries broke out in 1937.³³ In 1935, I. Yamamoto was made head of the Imperial Navy's aviation bureau, and in 1936, after the Japanese delegation walked out of the second London naval disarmament conference, he was ordered to more than double aircraft procurement in the next two years.³⁴

The Imperial Navy's aviation department was developing fast. Sadao cited a 1936 Japanese Naval War College "Study of Strategy and Tactics in Operations against the United States," and an Aviation Headquarters document from 1937 which argued that "since control of the western Pacific would be decided by land-based planes, 'the ratio of fleet strength between Japan and the United States would hardly come into the picture.'"³⁵ Such papers, though they did not represent the mainstream of Japanese maritime philosophy, do show that the Naval Aviation Department had examined doctrine and strategy critically during the years since 1930. There also had been much technical progress, though the Japanese aircraft industry continued to have difficulty producing powerful engines. In the fall of 1937, the aviation bureau issued specifications for an air superiority fighter that was

"one step beyond" existing navy fighters in performance and endurance. The new plane was part of a trio of new, high-performance aircraft which were ordered together to give Imperial Navy units capability equal to any foreign competitors.³⁶

Japanese technical and doctrinal advances were not fortuitous; they were the result of an institutionalized analysis of ideas and technology within the navy and within major manufacturers such as Mitsubishi. Aircraft and ship designers received data from maneuvers and from actual combat through the Aviation Bureau. The powers of the burean were sufficient for it to compel designers to develop the advances which its leadership knew were necessary. Japanese manufacturers were ready to produce quality aircraft; they had the necessary number of designers, engineers, and skilled machinists. The Japanese Army and Navy had each decided that relatively large and continuing orders had to be placed to develop the aircraft industry. Doctrinally, however, the Imperial Navy was not committed to aviation (especially carrier aviation) as its main combat force. Aircraft, like submarines and torpedo-carrying destroyers, were assigned the roles of whittling away U.S. Navy strength in the Pacific, and shielding Imperial Navy battleships in the crucial showdown of the opposing surface fleets. Despite the Imperial Navy's adherence to the doctrine of the decisive fleet action, Japanese naval aviation made great progress before 1940. It was number two in the world in terms of overall naval aviation strength in that year and drastically superior to its likely opponents in the western Pacific.

The U.S. Navy: A Model of Organizational Evolution

In January 1914, when the Navy established its first pilot training school, U.S. Navy aviation consisted of 9 officers, 23 enlisted men, and 7 aircraft.³⁷ By the end of World War I, U.S. Navy aviation forces had increased to approximately 7,000 officers, 33,000 enlisted personnel, and over 2,100 aircraft.³⁸ This fantastic growth was followed by a rapid decline because of demobilization. By the early summer of 1919, the number of officers in naval aviation was down to 580 (370 were aviators) and the number of enlisted men had fallen to 4,879 (3,479 had aviation ratings).³⁹ But war experience had demonstrated the value of aircraft in naval roles; from the Navy's perspective, the issue was not whether to embrace aviation, but where to put its very scarce postwar resources.

In March 1918 the Office of the Director of Naval Aviation was made a part of the staff of the Chief of Naval Operations (CNO). Though the director had regular access to the CNO, his authority, as well as that of the CNO himself, was limited by the U.S. Navy's bureau system. The bureaus were semiautonomous agencies which supplied the operating forces with ships, guns, supplies, engines, medical and dental care, and important

personnel services (training manuals, transfer processing, retirement, etc.). The bureaus were not under the control of the CNO because his office did not control their budgets, and their influence within the Navy was substantial—especially the Bureaus of Ordnance Engineering, Navigation (personnel), and Construction and Repair (ship design and construction). Navy aviators returning from Europe pressed the CNO to request the Secretary of the Navy to propose to Congress that a new bureau be created for aeronautics. He refused but the Navy's General Board, a standing committee of senior officers who advised the Secretary of the Navy on ship designs and other important matters, decided to hold extensive hearings covering a number of aviation issues in 1919. Included in these hearings was whether the U.S. Navy should follow the path already taken by the Royal Navy, that is, handing over its air assets to an independent air force.

The 1919 hearings before the General Board, conducted confidentially and classified Secret, are revealing and significant. They show that very senior officers, such as the Commander in Chief of the U.S. Fleet, supported the creation of a well-financed Navy air service with both seaplanes and aircraft carriers. The hearings also show that, though the aviators who testified often disagreed with one another about the shape of Navy aviation in the future, they were nearly unanimous in their advocacy of a separate bureau of naval aviation. In the course of its hearings, the General Board canvassed all the major tactical and organizational problems confronting naval aviation and even some of the technological problems of employing aircraft at sea. The proper role and authority of a bureau of aviation were discussed, and alternative ways of procuring planes and then testing them were weighed. At the end of its hearings and deliberations, the board prepared a memo to the Secretary of the Navy. A number of its "Conclusions and Recommendations" were significant and influential, including the following:

- (a) . . . fleet aviation must be developed to the fullest extent. Aircraft have become an essential arm of the fleet. A naval air service must be established, capable of accompanying and operating with the fleet in all waters of the globe
- (g) Fleet engagements of the future will probably be preceded by air engagements. The advantage will lie with the fleet which wins in the air . . . airplane carriers for the fleet [should] be provided in the proportion of one carrier to each squadron of capital ships
- (j) Development of all types of aircraft . . . and fleet aviation are the most important work for the immediate future. Construction should be kept as low as possible . . . but for experimental and development work, a liberal appropriation should be included in each yearly program.⁴⁰

With this official endorsement and encouragement, the advocates of a new Navy bureau of aviation began a campaign to generate support for their proposal both within and outside of the Navy. The General Board at first hesitated to back a major organizational change because it wanted to retain its control over ship—and now also aircraft—designs. The Board members

wrestled with the task of specifying the military characteristics for aircraft all through 1920, but discovered that the procedures they had employed successfully in reviewing ship designs and in imposing strategic principles on the bureaus concerned with ship design, ship construction, and naval weapons did not work when applied to aviation. Board deliberations were marked by complaints by the members: they did not know enough about planes or about flying to have the confidence to set aircraft characteristics; they could not anticipate the military potential of large, long-range airships; they did not want to recommend that Congress authorize carriers which would not operate future aircraft types. The Board was severely handicapped by the lack of aviation experience in the fleet. Its efforts were also impeded by the lack of a single design bureau or office for aircraft. In order to exercise competently its responsibilities in the field of aircraft design, the Board either would have to create an organization which could pool the expertise of the bureaus or give the authority to set aircraft designs and characteristics to a new bureau.⁴¹

With support from within Congress, from the Harding administration, and from technical specialists in the Navy and the National Advisory Committee for Aeronautics, the Navy's aviators finally got their bureau in August 1921.⁴² But that was just the beginning of a long struggle by the new Bureau of Aeronautics (BUAER) to consolidate and expand its position. As in Great Britain, there was a major controversy over whether there should be a separate air service. The story of this controversy, centered on the career of Brigadier General William Mitchell of the Army, is long and well-documented.⁴³ What matters here is the impact of the controversy on U.S. Navy aviation. BUAER's first chief, Rear Admiral W.A. Moffett, used the congressional hearings, press debates, and official investigations to quiet Navy aviators who wanted more autonomy within the Navy and those Navy officers who were hostile to aviation. He walked a tightrope between being "too Navy" and "too air-minded." He understood that he had to fight off the pressure for a separate air force while simultaneously strengthening his bureau's influence and status within the Navy. Moffett's papers reveal he well knew that in warding off the campaign of Mitchell for a unified air service, he could also build the influence of his new organization.

Moffett, a Medal of Honor winner and superb administrator, but not a qualified pilot, wrote much of Navy General Order No. 65 which translated the legislation authorizing BUAER into specific regulations. The order defined the new bureau's authority as "all that related to designing, building, fitting out, and repairing Naval and Marine Corps aircraft," as well as the preparation of the bulk of the budget for naval aviation procurement, training, and support structures (airfields, shops, and hangars).⁴⁴ The bureau also had "authority to recommend to the Bureau of Navigation and the Commandant of the Marine Corps" how pilots would be selected, assigned,

and promoted.⁴⁵ Finally, the order directed BUAER to supply the CNO with all the information he might need regarding "all aeronautic planning, operations, and administration."⁴⁶ In one stroke, Rear Admiral Moffett had created a new organization with more potential authority than the existing Navy bureaus, but the statement of that authority left room for interpretation; it was couched in language which made possible either an assertion of authority or a retreat from it.

Moffett had no intention of retreating. Very quickly, he developed a five-year plan for Navy aviation with a focus on getting aviation units to sea. He also sought allies within the Navy to support his plan. One such ally was the well-known and respected Admiral W.S. Sims, then President of the Naval War College. Sims was trying to use the simulations staged at the college to play out the possible roles of Navy aviation. Moffett wanted and needed the guidance and prestige which such simulations provided.⁴⁷ He got it. As a result, Moffett's formal plan had more than the authority of the new bureau. It rested on a developing consensus about the role of naval aviation and the means to fulfill that role. As Moffett argued to the CNO and Secretary of the Navy, BUAER needed "a definite program . . . that extends several years ahead of each year's aeronautic appropriation."⁴⁸ He also recognized the need to create a career path for Navy aviators and a means of preventing the aviation community from becoming too fragmented and too isolated from the rest of the Navy. The statement set the basic goals for BUAER: a 1,000-plane production program to promote the U.S. aircraft industry; the training of aviators as officers (because, in flying against an enemy, each aircraft might become an independent command); the authority to draw the best graduates of the Naval Academy into aviation; and a program of professional development which would expose Navy aviators to all the branches of their specialty -carrier aviation, large seaplanes, and floatplanes carried by cruisers and battleships. This last would not only keep aviators from dividing into different camps, it would also serve to signal the regular line Navy officers that aviation was linked closely to their activities.

Moffett also created or supported the creation of several Navy boards which thrashed out BUAER's conflicts with other Navy organizations, particularly the Bureau of Navigation. He was able, through the investigations and subsequent recommendations of these various boards, to reserve command of carriers and seaplane tenders for aviators, squash the concept (accepted by the Royal Navy) of the multipurpose plane for carriers, and fight off the justified criticism of the General Board that BUAER was encroaching on its authority.

Rear Admiral Moffett was an astute bureaucratic politician. He built alliances with members of Congress, with Navy colleagues, and with journalists, and he cultivated wealthy patrons. Until his death in the crash of the airship *Akron* in 1933, he shielded Navy aviation programs from outside

criticism while promoting the image of Navy aviation as dynamic, powerful, and exciting. His goal was to create an effective organization which was linked with and supported by a political, journalistic, Navy, and industrial constituency. Shielded from political foes, development and innovation could proceed rapidly.

Though Moffett tenaciously held on to his post as BUAER's chief, he delegated authority to his assistants and respected the prerogatives of the commanders of fleet aviation. In 1926, for example, Captain J.M. Reeves took command of the experimental carrier *Langley*, then based with the fleet's main battle force on the West Coast. Reeves had spent 1925 at the Naval War College. His experience with the college's simulations of a Pacific war (established when Admiral Sims was president) had convinced Reeves that carriers, in order to become effective strike weapons, had to carry more planes and launch, recover, and service them faster. Over the opposition of *Langley*'s aviators, he increased the carrier's aircraft complement from 12 to 42, and under his direction, landing and launching intervals were slashed. While Reeves was her captain, *Langley*'s crew also developed an effective crash barrier (to stop planes which missed the arresting gear wires), as well as procedures for moving large numbers of planes safely around a crowded flight deck. None of these very important innovations were ordered or anticipated by Moffett, but he gave Reeves his strong and encouraging support—support which Reeves wanted and needed in his climb to the post of Commander in Chief, U.S. Fleet.⁴⁹

Naval aviation also benefited from the Navy's commitment to a rational examination of doctrine through analysis. Officers who did not like aviation, but who nonetheless were good professionals, had to accept the evidence that aircraft spotting was essential to very long-range daytime gunnery, that carrier aircraft were growing more powerful and effective from year to year, and that long-range seaplanes were a great aid to fleet reconnaissance. It was the evidence of Royal Navy operations, for example, that led senior U.S. Navy officers serving in the European theater in World War I to support aviation in testimony to the General Board in 1919. Similarly, in 1926, Captain Reeves organized both a stunt and a demonstration. He promised the admirals commanding the battleships and battle force of the U.S. Fleet that he could spring a surprise attack on their forces on a day of their choosing. *Langley*'s aviators had practiced dive-bombing from high altitude, and Reeves wanted a convincing demonstration of the new technique's effectiveness. He got it, to the glee of his aviators and amazement of his superiors; his demonstration, and others of a less sensational nature, converted the admirals and widened the circle of aviation's supporters.⁵⁰ Something similar occurred in 1929 when the large, converted battle cruisers, *Saratoga* and *Lexington*, first participated in the annual fleet problems. An unorthodox nighttime high-speed run by *Saratoga*, escorted only by a light cruiser, followed by a surprise

dawn air attack by *Saratoga*'s air group on the locks of the Panama Canal, was a striking success.⁵¹ The fleet problems themselves had been developed in the early 1920s as a means of testing scenarios worked out by the War College and by the staff of the CNO. Through the 1920s and 1930s, the annual problems were to serve as a valuable testing ground for aviation concepts and procedures. Their value was a function of the shared commitment of Navy officers to a sensible assessment of available operational data.⁵²

It would be a mistake to claim that BUAER made no errors in the years before World War II. Rear Admiral Moffett, for example, was a strong supporter of large, long-range airships which carried aircraft for reconnaissance. Operationally, the two which were produced were a failure, and the airship program was eventually overtaken by the increasing range and reliability of seaplanes and land-based bombers.⁵³ In 1931 the Navy and the Army agreed that the Army's heavy bombardment air units would carry the responsibility for coast defense. Rear Admiral Moffett defended the action by saying that it freed Navy assets for work with the fleet. Essential to his argument was the assumption that Navy seaplanes could both scout and perform well as high-altitude level bombers, but war experience quickly showed that no seaplane could function effectively as a high-level bomber. There were other errors, both in doctrine and tactics—for example, it took war experience to prompt the switch from the three-aircraft fighter element to the two-aircraft (leader and wingman) combination still in use today. Yet the BUAER organizational structure, procedures, and norms created before World War II allowed the Navy to develop and then expand a quality naval air service. Indeed, the effectiveness of BUAER was best reflected by its ability to produce a huge quantity (by comparison with Great Britain and Japan) of qualified pilots, mechanics, and plane handlers. The foundations of aerial victory in 1944 were laid down in the 1920s and 1930s.

Organization and Innovation

The organizational histories of the aviation components of the Royal Navy, the U.S. Navy, and the Imperial Japanese Navy between World War I and 1940 are case studies in innovation and adaptability. There is, obviously, a lack of data on both the Royal Navy and Imperial Japanese Navy programs; in the latter case, the data are fragmentary; in the case of the Royal Navy, the existing data are not very accessible.⁵⁴ The danger is that the inferences drawn will be taken from the U.S. case, and that the U.S. case may not be representative. However, the parallels between the U.S. Navy and Imperial Navy are strong, and the Royal Navy counterexample is strikingly clear. In addition, the cases corroborate claims widely supported in the literature on organizations.

First, the cases show that the "lack of an effective continuing advocative constituency, for whatever reason, is clearly a major inhibitor to the adoption

of innovation."⁵⁵ As Powell has noted, "most [technological] progress is made through a series of incremental steps."⁵⁶ Once introduced, a new concept or tactic or weapon needs to be refined and improved and accepted by the users. Without continuing support and testing, progress cannot be maintained.⁵⁷ Naval aviation in the 1920s and 1930s provides classic illustrations of this point. Carrier fighter speeds, for example, increased steadily for the aircraft of all three navies during this period, from an average of about 125 knots in 1928 to nearly 300 knots in 1940. Service ceilings for fighters also jumped from approximately 22,000 ft. in 1928 to almost 34,000 ft. in 1940. Carrier strike aircraft (dive bombers and torpedo planes) characteristics also improved dramatically.⁵⁸ By 1940 the criticism that carrier planes could not carry enough ordnance or fly fast and far enough—a criticism quite justified in 1930—was no longer valid. All three navies found that, though it made sense tactically to have lots of carriers, the growth in the size and weight of strike aircraft (coupled with arms treaty restrictions on overall carrier tonnage) compelled them to construct small numbers of large carriers—so that only during the war did they get the numbers of carriers which prewar exercises had suggested they needed. In effect, it took war experience to show that prewar claims were correct, and the navies with strong aviation bureaus—the U.S. Navy and Imperial Japanese Navy—were better at evaluating early war experience than the Royal Navy, whose Fleet Air Arm had always been overshadowed by the RAF.

A second proposition which is supported by the case studies is that solving complicated technological problems requires the exploration of a diverse set of approaches. Heavy commitments to only one approach are dangerous in early stages of the development of a technology.⁵⁹ Through the 1930s, land-based fighters grew larger, heavier, and faster; monoplanes replaced biplanes, and engine power began to surge. Carrier fighters, however, faced one problem that the land-based aircraft did not: the need to reduce landing speeds so that pilots could land safely on a small deck. At the same time, naval aviators had to assess their chances of clashing with land-based fighters; evidence (in the Imperial Japanese Navy's case, actual combat experience in China) suggested that the chance was increasing. Designers were faced with pressure to increase fighter speed and maneuverability. There were two options: Push the existing design philosophy to the limit, or go off in a new direction. The Imperial Navy chose the first alternative, while the U.S. Navy opted for the second.

The difference in these choices can be expressed numerically in the wing loadings (85 percent of take-off weight divided by wing area) of Imperial Navy and U.S. Navy aircraft, as follows:

Aircraft	Year	Wing Loading (Lbs./Sq.Foot)
Grumman F3F-1	1935	13.53
Grumman F4F-4	1941	26.07
Mitsubishi A5M4	1937	16.30
Mitsubishi A6M2	1939	18.08 ⁶¹

The A6M2 is the famous Zero with the maneuverability of a biplane and the climb rate of a monoplane. The price paid for this combination—a weak airframe and no armor protection for the pilot—was quite serious in the long run, but the Imperial Navy had little choice because it chose not to gamble that Japanese aircraft manufacturers could produce the facilities and skilled personnel to turn out large numbers of really powerful engines.⁶¹ In effect, the Imperial Navy pushed one design strategy to its limits. The U.S. Navy, on the other hand, moved from one strategy to another, as the numbers comparing the F3F and F4F show. The drawback was that the F4F Wildcat was outmaneuvered by the Zero. The benefit was that later U.S. Navy fighters, such as the F6F Hellcat and F4U Corsair, had engines and performance better than their Japanese contemporaries, such as the Mitsubishi A7M2 of 1944. The U.S. Navy had a stronger industrial base and used it, gradually developing planes superior to that of the Imperial Navy. Given the threat of war in 1940, the BUAER decision to contract for a new generation of large-engine propeller-driven fighters was risky but reasonable given the organization's mission and its evaluation of the U.S. aircraft industry. For the Imperial Navy, such a risk did not appear technically feasible. For the Royal Navy, by contrast, taking the risk was not organizationally possible.

This assertion leads to a third proposition: That continuing advocacy is insufficient in itself for successful innovation.⁶² The organization must also be able to gain experience with the innovation and alter its methods on the basis of that experience.⁶³ The Royal Navy was never able to conduct the analysis which so stimulated Imperial Navy and U.S. Navy aviation because there was a shortage of money for naval aviation until the late 1930s, and British military policy during most of the 1920s and 1930s lacked focus and direction.⁶⁴ The consequences for the Fleet Air Arm were severe: not enough aircraft, drastic personnel shortages, senior commanders without aviation experience, and inadequate tactical doctrine. Only after the Norwegian campaign of April 1940 was the FAA able to understand its major tactical and materiel problems.

Beyond the need for an institution, such as a bureau, which draws resources to the innovation and shields it from controversy and criticism, the cases show that a new agency and its leaders need the following characteristics:

- a toleration of failure and a willingness to experiment;
- patience with the rate of change combined with a vision of the future which forces change;

- balance between the demands of partisans of different sets of priorities, particularly in peacetime, when lack of sufficient money to meet all the legitimate demands for it compels senior officers to make essentially political decisions about how that money is distributed;
- an understanding of the need for accurate information about the performance of new equipment and the success of new techniques; and
- a willingness to analyze this information.

Landau has argued that organizations need means of conducting "pre-audits" and "post-audits."⁶⁵ The preaudit is an error-prevention strategy, such as a simulation. The postaudit is an error-correction strategy, for example, the annual fleet problem of the U.S. Navy. The utilization of both pre- and postaudits is more likely when an organization's leaders have the five characteristics just listed.⁶⁶ Royal Navy officers concerned about naval aviation in the interwar years were often dissatisfied with the results of maneuvers and exercises. They felt they were not learning enough or learning the right things. Further, before 1938 there was no good system of preaudits for the Fleet Air Arm. Fleet exercises and war games featured aviation in a close supporting role to the Royal Navy's battlefleet, a practice quite contrary to that of the U.S. Navy and Imperial Navy.

Our argument is that naval aviation flourished where, behind an effective shield against haphazard external interference, there existed an organization which could conduct pre- and postaudits and then turn what it had learned into the specifics of airplane design and aircraft tactics. Naval aviation flourished to the extent that institutions external to it, but with influence over it, were supportive, and there existed an ongoing cycle of simulations, tests, and change. Rear Admiral Moffett of the U.S. Navy was effective because, first, he gained support outside his organization; second, he had a firm grasp of the organizational and tactical issues which his organization would have to solve to be successful; third, he cultivated an organizational atmosphere which encouraged experimentation and decentralized decision-making. But Moffett could not have succeeded in isolation. Most of his allies were convinced of the importance of naval aviation before they even dealt with him. Recall the General Board hearings of 1919 where U.S. Navy aviation gained a degree of legitimacy which seven years of bureaucratic conflict could not shake. Moreover, Moffett also had the help of some of the sharpest young officers in the U.S. Navy, as well as a continuous stream of talent—Naval Academy graduates eager for the risks and adventure of flying. This contrasts with the British case where there was no clearly articulated demand for high-performance strike aircraft, procedures to evaluate naval aviation experience were ineffective, and high-level bureaucratic conflicts demoralized and distracted (and even drove away) the younger officers so desperately needed by the neglected FAA.

In the Japanese case, what aided Imperial Navy aviation in the short run may have seriously harmed it over the long term. Following the lead of the Japanese Army, the Imperial Japanese Navy's air force was established as a special "Naval Air Establishment" in 1932 with its own budget and separate planning and operations staffs. While there appeared to be a clearly articulated demand for high performance naval aircraft in the Imperial Navy, they did not engage in the type of criticism and analysis employed within the U.S. Navy to identify strategic errors. Organizationally, the Imperial Navy appears to have been something of a collection of fiefdoms. Separate aviation and surface and submarine communities rarely interacted at lower organizational levels. Integration of doctrine and tactics, such as it was, was accomplished at higher levels, but the higher command echelons were themselves divided into an operational (fleet) staff and an Imperial Navy general staff in Tokyo, and officers did not move freely from one group to the other.⁶⁷ There was little discussion—let alone cooperation—between Japanese Army and Navy aviation;⁶⁸ Japan had no equivalent of the U.S. Joint Army-Navy Board on Aeronautics (created in 1919). Indeed, a combined Army-Imperial Japanese Navy command of air units with naval missions was not established until 1944.⁶⁹ We do not argue that these reasons completely explain the troubles of the Imperial Navy. The Japanese case is complicated by their Navy's adherence to an inappropriate doctrine (the decisive fleet action), so that the effects of doctrine and a poorly integrated organization are difficult to separate.

Innovation in military institutions is often portrayed as a heroic process, with an insightful and energetic, and usually junior reformer set against seniors who have achieved prominence by accepting traditional procedures and ideas and so look upon change as a threat. Such reformers have indeed affected modern navies.⁷⁰ The cases reviewed here, however, illustrate, in our view, the importance of organizational characteristics to innovation. When organizational members resist facing reality, their ability to analyze and solve problems is attenuated. Organizations cannot innovate or foster innovation effectively over the long-term where the organizations' cultures and/or structures permit their members to avoid facing reality.⁷¹

Outstanding organization leaders understand the relation among innovations, analysis, vision, and effectiveness and they act to foster it. They also understand that internal leadership must be complemented by external alliance-building. These inferences are not new to the literature on complex organizations, but we believe that the cases reviewed in this paper give them further support.

Notes

1. Geoffrey Till, *Air Power and the Royal Navy, 1914-1945* (London: Jane's Publishing Co., 1979), pp. 29, 85.

2. H. Montgomery Hyde, *British Air Policy Between the Wars, 1918-1939* (London: Wm. Heineman, 1976), p. 31. For extensive documentation of this period, see S.W. Roskill, ed., *Documents Relating to the Naval Air Service* (London: Navy Records Society, 1969), v. 1.

3. Hyde, p. 100.

4. Till, p. 45. Pages 38-41, 42, and 44-45 discuss the personnel problems which hindered FAA development.

5. *Ibid.*, chap. 4.

6. *Ibid.*, pp. 86-87.

7. *Ibid.*, p. 127; see also Roskill's Introduction to *Documents Relating to the Naval Air Service*.

8. Stephen Roskill, *Naval Policy Between the Wars* (Annapolis: Naval Institute Press, 1976), v. 2, p. 196; see also Till, p. 77.

9. Roskill, *Naval Policy Between the Wars*, pp. 199-200; see also Till, p. 77.

10. Till, p. 87-90.

11. Roskill, *Naval Policy Between the Wars*, chap. 13.

12. *Ibid.*, p. 406.

13. *Ibid.*, p. 408.

14. *Ibid.*, p. 205.

15. Norman Friedman, *U.S. Aircraft Carriers* (Annapolis: Naval Institute Press, 1983), pp. 215-217.

16. Till, pp. 55-59; see also Roskill, *Naval Policy Between the Wars*, p. 264; also consulted for this section were (1) the CONFIDENTIAL Naval Staff history of British naval aviation and (2) CONFIDENTIAL tactical reports prepared within the Royal Navy during the 1930s. Both sets of reports are held by the Classified Operational Archives of the U.S. Navy, Washington Navy Yard, Washington, D.C.

17. Toshikazu Ohnac, "Japanese Naval Aviation," U.S. Naval Institute *Proceedings*, December 1972, p. 70.

18. *Ibid.*

19. John Ferris, "A British 'Unofficial' Aviation Mission and Japanese Naval Developments, 1919-1929," *Journal of Strategic Studies*, September 1982, p. 418.

20. *Ibid.*, p. 424.

21. Entries 13397 and 14173, Office of Naval Intelligence files, F-10-e, National Archives.

22. Military Intelligence Division Reports, 2085-663 and 2085-631, Record Group (R.G.) 165, National Archives.

23. Ferris, p. 433.

24. *Ibid.*, p. 434.

25. *Ibid.*, pp. 434-435.

26. Military Intelligence Division Reports, 2085-667, R.G. 165, National Archives.

27. Ferris, p. 435.

28. *Ibid.*

29. Military Intelligence Division Reports, 2085-747, R.G. 165, National Archives.

30. Ferris, p. 435.

31. Asada Sadao, "The Japanese Navy and The United States," in Dorothy Berg and Shunpei Okamoto, eds., *Pearl Harbor as History* (New York: Columbia University, 1973), pp. 225-259.

32. Jiro Horikoshi, *Eagles of Mitsubishi: The Story of the Zero Fighter* (Seattle: University of Washington Press, 1981), p. 15.

33. *Ibid.*, p. 150.

34. Toshikazu Ohnac, "Development of the Japanese Navy, Concerning Strategical Conception, War Preparations and Operations," March 1955, p. 40, in the Special Collection of the Navy Department Library, Washington Navy Yard, Washington, D.C.; see also, Hiroyuki Agawa, *The Reluctant Admiral* (Tokyo: Kodansha, 1979), pp. 71, 105.

35. Sadao, pp. 237-238.

36. Horikoshi, p. 150.

37. Naval Air Systems Command, *United States Aviation, 1910-1970*, NAVAIR 00-80P-1 (Washington: U.S. Govt. Print. Off., 1970), p. 9.

38. *Ibid.*, p. 35.

39. "U.S. Naval Administration in World War II: BUAER, Vol. I," Typewritten Manuscript, Navy Department Library, Washington Navy Yard, Washington, D.C., pp. 34-35.

40. Memo, from General Board to the Secretary of the Navy, "Future Policy Governing Development of Air Service for the United States Navy," G.B. No. 499, Serial #887, 23 June 1919. The following "Hearings before the General Board of the U.S. Navy" (stenographic records) were also examined: 18 January, 5 March, 10 March, 27 March, 17 April, 25 April, 6 May, 12 May, and 9 June 1919. The hearings and memo are in the U.S. Navy's Classified Operational Archives, Washington Navy Yard, Washington, D.C.

41. "Hearings before the General Board of the U.S. Navy," 12 January and 1 November 1920, U.S. Navy Classified Operational Archives, Washington Navy Yard, Washington, D.C.

42. Clifford Lord, "The History of Naval Aviation, 1898-1939," pt. 3, unpublished manuscript, Naval Aviation History Unit, Office of the Deputy Chief of Naval Operations (Air), 1946, Navy Department Library, Washington Navy Yard, Washington, D.C., pp. 827-843.

43. Charles Melhorn, *Two-Block Fox, The Rise of the Aircraft Carrier, 1911-1929* (Annapolis: Naval Institute Press, 1974), pp. 69-73; for an excellent discussion of Mitchell's methods and ideas, see A.F. Hirtley, *Billy Mitchell: Crusader for Air Power* (N.Y.: Franklin Watts, 1964); see also Edward Arpee, *From Frigates to Flat-Tops* (Lake Forest, Illinois: the author, 1953).

44. *United States Naval Aviation, 1910-1970*, p. 48; for details about Moffett's career, see T. Hone, "Navy Air Leadership: RADM W.A. Moffett as Chief of the Bureau of Aeronautics," in *Air Leadership* (Washington, D.C.: Office of Air Force History, 1986), pp. 83-118.

45. *Ibid.*

46. *Ibid.*

47. Lieutenant G.H. Moffett, U.S. Navy (Ret.) granted us access to Rear Admiral Moffett's papers (hereafter cited as Moffett Papers) in the Naval Academy Library, Annapolis, Md. The letter to Admiral Sims is dated 28 February 1922.

48. Memo from Chief, BUAER, to the Secretary of the Navy via the CNO, "Naval Aeronautic Policy," 10 August 1922, Moffett Papers, para. 4.

49. Melhorn, p. 113; also J.D. Hayes, "Admiral Joseph Mason Reeves, USN" *Naval War College Review*, November 1970, pp. 52-53; there is also a revealing letter from Reeves to Moffett, 4 October 1928, in Moffett Papers.

50. Hayes, p. 53.

51. Records covering Fleet Problem IX are in National Archives publication M964 which covers the Confidential Correspondence of the Secretary of the Navy, File A16-3.

52. T. Hone and M. Mandelis, "Managerial Style in the Interwar Navy: A Reappraisal," *Naval War College Review*, September-October 1980, pp. 88-101; see also M. Vlahos, "Wargaming, an Enforcer of Strategic Realism: 1919-1942," *Naval War College Review*, March-April 1986, pp. 7-22.

53. *Akron* cost \$5,375,000; *Macon* was far more reasonable at \$2,450,000 because of lessons learned with *Akron*. However, *Akron* logged only 1,696 hours over 73 flights before crashing. *Macon* flew 1,798 hours on 54 flights. *Carrier Ranger* had cost \$12.5 million to build. See U.S. Navy Dept., Bureau of Supplies and Accounts, *Naval Expenditures, 1933* (Washington: 1934), p. 275; see also Garland Fulton, "Some Features of a Modern Airship—U.S.S. *Akron*," *Transactions of the Society of Naval Architects and Marine Engineers* (New York: Society of Naval Architects and Marine Engineers, 1931), v. 39, pp. 135-154.

54. The interesting reports on Royal Navy naval aviation (cited in note 17) held by the U.S. Navy's Classified Operational Archives are still restricted, even though both sets of reports are forty years old. The authors tried and failed to persuade the British Government, through its embassy, to release them.

55. Alan Powell, "To Foster Innovation in Naval Ships," *Naval Engineers Journal*, April 1982, p. 256.

56. *Ibid.*, p. 255.

57. Our position is quite similar to Sir Karl Popper's description of science, wherein "science is one of the very few human activities . . . in which errors are systematically criticized and fairly often, in time, corrected. This is why we can say that, in science, we often learn from our mistakes, and why we can speak clearly and sensibly about making progress there. In most other fields of human endeavor there is change, but rarely progress." See Karl R. Popper, *Conjectures and Refutations: The Growth of Scientific Knowledge* (New York: Harper Torchbooks, 1968), pp. 216-217.

58. Norman Friedman, *Carrier Air Power* (New York: Rutledge Press, 1981), Appendix 2, pp. 172-191.

59. See Richard R. Nelson and Richard N. Langlois, "Industrial Innovation Policy: Lessons from American History," *Science*, 18 February 1983, pp. 814-818; Mark D. Mandelis, "The Air Forces's Management of R&D: Redundancy in the B-52 and B-70 Development Programs" (Ph.D. diss., Indiana University, 1985).

60. Friedman, *Carrier Air Power*, Appendix 2, pp. 172-191.

61. Martin Caidin, *Zero Fighter* (New York: Ballantine, 1969) presents a different view. Caidin's sources, including Jiro Horikoshi, maintain that the weaker characteristics of the Zero were set after Imperial Japanese Navy pilots with experience in China demanded (in 1939) that more emphasis be placed on maneuverability, pp. 38-39.

62. See James M. Utterback, "Innovation in Industry and the Diffusion of Technology," *Science*, 15 February 1974, pp. 620-626; Robert K. Yin, "Life Histories of Innovations: How New Practices Become Routinized," *Public Administration Review*, January-February 1981.

63. Martin Landau, "On the Concept of a Self-Correcting Organization," *Public Administration Review*, November-December 1973, pp. 4-12; Aaron Wildavsky, *Speaking Truth to Power* (Boston: Little, Brown, 1979), chaps. 2 and 9.

64. John Gooch, "The Chiefs of Staff and the Higher Organization for Defence in Britain, 1904-1984," *Naval War College Review*, January-February 1986, pp. 56-57; and see David French, "'Official but not History?' Sir James Edmonds and the Official History of the Great War," *RUSI*, March 1986, pp. 58-63. Although French details resistance to criticism within the British Army, there is little reason to suppose that the ethos of the Royal Navy was any different.

65. See Landau; see also D.K. Allison's study of Sidewinder missile development in "U.S. Navy Research and Development since World War II," in M.R. Smith, ed., *Military Enterprise and Technological Change* (Cambridge, Mass.: MIT, 1985), pp. 289-328.

66. See James Brian Quinn, "Technological Innovation, Entrepreneurship, and Strategy," *Sloan Management Review*, Spring 1979, pp. 19-30.

67. Sadao, p. 633, note 53.

68. Sadao, pp. 244-245, 256-257.

69. *The Japanese Air Forces in World War II* (London: Arms and Armour Press, 1979), pp. 106-107.

70. See Vincent Davis, *The Politics of Innovation, Patterns in Navy Cases* (Denver: University of Denver, 1967), and E.E. Morison, *Admiral Sims and the Modern American Navy* (Boston: Houghton Mifflin, 1942).

71. See James Brian Quinn, "Strategic Change: 'Logical Incrementalism,'" *Sloan Management Review*, Fall 1978, pp. 7-21.

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Bureaucracy Is Not a Four-Letter Word

William R. Farrell

Very few of us thought about becoming a bureaucrat when we grew up. A pilot, teacher, minister or even President, perhaps; but a bureaucrat? Never! The popular image of such an individual is not favorable. He or she generates paper, is insensitive to people's needs and loves to place hurdles in the way of progress. The press has a field day with lead stories relating the horrors of bureaucratic error:

- A Chicago woman undergoing chemotherapy for cancer of the breast applied for Medicare. She received a computer-produced letter indicating she was ineligible since she had died the previous April.
- The Department of Energy set out to declassify millions of documents inherited from the Atomic Energy Commission. Eight of the released documents contained the basic design principles for the hydrogen bomb.
- A unit of what is now the Department of Health and Human Services sent fifteen chimpanzees to a Texas laboratory for the purpose of launching a chimp-breeding program. All were males.¹

These items are startling and certainly interesting, therefore newsworthy. They are news, however, because they are extraordinary occurrences. The fact that 98 percent of Medicare recipients receive their checks on time does not constitute news. The atypical event, coupled with the pejorative perception of bureaucracy, combines to make a media headline.

For our purposes, the military executive should not dwell on the popular image but rather on bureaucracy as a form of formal organization. It is within this organizational environment that the military member has and will continue to function in the performance of duty.

Aspects of Bureaucracy

"Modern man is man in organizations."² Brief reflection reveals that people spend a significant portion of their time acting in or being impacted upon by organizations. From birth to the grave—hospitals, schools, colleges,

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military training, work, and morticians—all forms of organized activity play a role in facilitating our entry into and departure from this earthly realm.³

Organizations come into existence when explicit procedures are established to coordinate the activities of a group in the interest of achieving specified objectives. What makes the study of organizations particularly interesting and necessary is that actual interaction and activity within them rarely correspond to official prescriptions and design. Further it is often difficult to determine the boundaries of an organization, to know definitely where one organization ends and another begins. It is not unusual for some one or group from outside a particular organization to be able to influence what goes on within an organization.⁴ The influence of congressional committees upon Department of Defense (DOD) spending is quite profound. Yet, no study of DOD in and of itself would develop this information.⁵

Senior military executives should fully appreciate that governments perceive problems through organizational sensors. Alternatives are defined and consequences estimated as governmental organizations process information. Governments act as their organizations enact routines. The Department of Defense is made up of other organizations among which primary responsibility for particular tasks is divided. DOD behavior thus reflects the independent output of several organizations, partially coordinated by leaders who can "substantially disturb but not control the behavior of these organizations."⁶

One of the earliest attempts to analyze the impact of organizations on society was conducted by the German sociologist, Max Weber. He asserted that one of the major features of modern society was the presence of large multifaceted organizations—or bureaucracies—which possessed a regulated impersonal framework where hierarchy and specialization were the dominating characteristics. A "bureaucracy" was characterized by the following features:

- Organization tasks are distributed among various positions as official duties. Implied in this is a clear-cut division of labor among positions which make possible a high degree of specialization. Specialization, in turn, promotes expertise among organizational members.
- Positions or offices are organized into hierarchical authority structures.
- A formally established system of rules governs official decisions and actions. This insures a standardization of operations and a continuity of operations regardless of changes in personnel.
- Officials are expected to assume an impersonal orientation which is designed to prevent the personal feelings of officials from distorting their rational judgment.
- Employment by the organization constitutes a career during which officials are appointed by and thus become dependent on their superiors.⁷

Implicit in much of the early study of bureaucracy was the assumption that organizations have a set of goals that are widely shared by members of the organization. This tendency led to the description of bureaucracies as cohesive units. "In fact, the members of the same bureaucracy may have different goals."⁸ While signs on the fourth floor of the Pentagon speak of "One Navy," a discerning wanderer of those hallowed halls will hear conversations emanating from doorways which indicate there are, in fact, several navies—that either fly in the air, float on the surface or move quietly below the depths, some on the east coast some on the west. During the preparations for budget submissions these conversations will include raised voices, as "the Navy" moves toward fulfillment of its many competing goals.

One danger in the pursuit of bureaucratic goals is the phenomenon of goal displacement. The emphasis on the way goals are to be reached leads to a transference of member sentiments from the aims of the organization to the particular details of behavior required by the rules. Adhering to the rules, originally conceived as a means, becomes an end in itself. Thus, "an instrumental value becomes a terminal value."⁹ This emphasis develops into rigidity and an inability to adjust readily, to the point where concern with conformity to the rules interferes with the achievement of the purposes of the organization.

A good example of this phenomenon was demonstrated while organizing the Joint Task Force to free the hostages in Iran, November 1979 through April 1980. A report issued 24 August 1980 by Admiral James L. Holloway III, U.S. Navy (Ret.) states that the "seemingly non-discriminating over-emphasis" on secrecy compromised the mission from the beginning. All other issues, including the ultimate goal of freeing the hostages, somehow became subordinated to what should have been one aspect among many, i.e., clear lines of command, adequate coordinated training, intelligence gathering, etc. In each of the problem areas surrounding the mission, the review group was able to name an alternative course which it concluded "would have had no effect or only a minimal one on security while substantially—if not critically—improving the chances of success."¹⁰

Bureaucracies tend to factor problems, avoid uncertainty, and look for satisfactory or optimal solutions while carrying out standard operating procedures. This one-thing-at-a-time approach is fundamental to the very existence of what is termed organizational structure. Bureaucratic structure consists of those aspects of behavior that are relatively stable and that change only slowly. At any given time an organization's programs for performing its tasks are part of its structure.¹¹

Closely related to this is a bureaucracy's tendency to vest and weigh particular interests and perspectives.¹² Bureaucratic arrangements—that is the existence of specific departments, the distribution of powers among them, and procedures for communication—determine whether and how effectively

particular considerations will be represented. A central question in bureaucratic design is what substantive perspectives should be introduced and with what weights in the decisionmaking process. An interest can be vested in several ways but most vividly in the creation of a specific agency expressly dedicated to a particular value, i.e., equal opportunity, ground safety, or parts procurement oversight. Giving weight to an interest is another matter. It could come about from formal authority, from control of resources or from special competence. Weight does not follow, however, as a matter of course from vesting.¹³

The reliable performance of a task requires standard operating procedures (SOPs). These rules permit standard action by large numbers of individuals responding to basic cues. The rules are generally simple enough to facilitate easy learning. Since the procedures are "standard," they do not change easily or quickly. Further, because of SOPs, bureaucratic behavior in particular instances can appear formalized and inappropriate.¹⁴

Bureaucracies conduct actions in which the behavior of hundreds of individuals is closely coordinated. Assured performance requires sets of SOPs for producing specific actions. These sets comprise a program that the organization has available for dealing with a situation. The list of programs constitutes an organizational repertoire. The number of programs in a repertoire is always limited and cannot be easily changed in a particular situation.¹⁵

The Iranian rescue mission also provides a clear example of how organizations have performance difficulties when leaders do not rely on standard programs. The Holloway Report took issue with the *ad hoc* nature of the organization and planning of the mission. "By not utilizing an existing JTF (Joint Task Force) organization, the Joint Chiefs of Staff (JCS) had to start, literally, from the beginning to establish a JTF, create an organization, provide a staff, develop a plan, select the units, and train the force" Existing Contingency Plans (CONPLAN) were not employed, and while the particular circumstances surrounding the Iranian mission may have differed, established programs would have provided the "conceptual basis for an additional capability." The Holloway group's evaluation made it quite clear that the "application of an existing JCS CONPLAN and JCS/Service doctrinal precepts could have improved the organization, planning, and preparation of the force through unity of command and cohesion of effort. That, in turn, would have led to more effective command and control and enhanced overall JTF readiness."¹⁶

Sometimes shifts in bureaucratic behavior are the result of action by government leaders. While these leaders have limited ability to make changes in particular organizations' SOPs, many important issues require that senior officials decide what organizations will enact what programs. Thus important shifts in the behavior of government can take place with little change in a

particular organization's parochialism. The leaders' options for shifting governmental behavior include: triggering program A rather than B; triggering existing organizational routines in a new context; triggering several different organizations' programs simultaneously; or shifting action responsibility from one organization to another.¹⁷

The term bureaucracy does suggest a certain bareness exemplified by a system of consciously coordinated activity. Yet, such a formal design never completely accounts for what participants do. Formal procedures may coordinate roles and specialized activity, but not people. "The formal technical system is therefore never more than a part of the living enterprise we deal with in action."¹⁸ The relations outlined in an organizational chart provide a framework within which fuller human behavior takes place.

Policy Tool or Scapegoat

Many studies assume that the activities of national security bureaucracies are planned and purposeful. Yet, more commonly, situations exist where there is constant change, with several participants entering the process at different times, attempting to define a complex situation where values and decisionmaking variables make analyses most difficult. The result is more a form of organized anarchy where activity is described afterwards in a fashion that appears rather systematic.

Some analysts assert that, in fact, bureaucracies are set up for failure. This is because the goals established by political superiors are often inconsistent, contradictory and thus unachievable. Statutory mandates which either create or impact upon agencies are often deliberately phrased in vague or ambivalent language to meet the desires of competing political interests.

Even if agency goals are clear initially, they almost inevitably become confused as statutes are amended, political leadership rotates, and hidden agendas emerge inside and outside the organization. Whoever is at fault, the public agency too often ends up with diverse goals nested in a lofty but meaningless ideological mission. Sometimes expectations are even directly contradictory. Regulatory bodies must both restrain and promote the industries they regulate, agricultural bureaucracies try to expand farm productivity while keeping commodity prices high, prisons should confine convicts securely and cheaply but are expected to rehabilitate their psyches.¹⁹

James Q. Wilson has commented that the "bureaucracy problem" grows out of conflicting public demands for accountability, equity, efficiency, responsiveness and fiscal integrity. The more a bureaucracy is responsive to its local clients, the less it can be accountable to Presidential directives. And a preoccupation with fiscal integrity can make the kind of budgeting required by enthusiasts of efficiency difficult, if not impossible.²⁰

Is DOD being responsive to the economic demands of an entire state when it keeps open an inefficient military facility? Is a weapon system which meets rigid fiscal requirements necessarily the most effective one in combat? Does equity through equal access to all combat specialities conflict with the goal of an effective military? Such "damned if you do, damned if you don't" situations are the source of much of the criticism heard about bureaucracies. "Incumbent officeholders can point to an incompetent bureaucracy as the reason why past policies did not achieve their touted ends. Candidates challenging incumbents can use bloated bureaucracies as an issue, without saying anything substantive or risking opposition. Conservatives can employ the bureaucracy myth as a rationale to reduce spending and taxes, cut back government regulation, decimate welfare programs, and push Proposition 13-type constitutional amendments. Liberals find it convenient as well; they can denounce bureaucracy as oppressing the poor, suppressing its employees, helping big business, and endangering civil liberties."²¹

Government bureaucracies are turned to by the people to solve pressing problems. The voice of the people is manifested through elected representatives, who create agencies to solve a perceived need—care for the elderly, reduce crime, provide defense. The actions called for are highly dependent upon events in the external environment. Members of bureaucracies are asked to accurately predict what will happen "out there" to justify why they plan to undertake plan X and not plan Y. When this external environment does not behave as predicted, the employees of the bureaucracy are singled out for blame.

The key point is that bureaucracies are tools which function within a larger environment. Bureaucracy did not create our economic problems and inequities. Bureaucracy did not cause international differences or racism. Bureaucracy did not establish the constitutional separation of powers that encourages uncertain policy direction and frequent political deadlock. Whether you find comfort in the reforms of a Franklin Roosevelt or the conservative practices of a Ronald Reagan, you will discover a bureaucracy at work turning policies into actions.

Bureaucracy should be viewed not as some large threatening "thing" but rather as concrete institutions upon which people depend for information, services and security. Vital services are routinely provided and taken for granted. When a mistake occurs, however, the bureaucracy is fair game for all the politicians, reporters and academics who specialize in making suggestions without ever assuming executive responsibility.

While the negative connotation ascribed to bureaucracy is stylish, it may be more appropriate for those who function poorly within it than for the organization itself. Mastering knowledge of bureaucracies and how they carry on the business of the day is a fundamental step for the successful military executive. Such an individual must have "the patience to accept

what cannot be changed in the organization, the courage to change what can be changed, and the wisdom to know the difference."²²

Notes

1. Charles T. Goodsell, *The Case for Bureaucracy* (Chatham, N.J.: Chatham House, 1983), p. 3.
2. Peter Blau and W. Richard Scott, *Formal Organizations, A Comparative Approach* (San Francisco, Calif.: Chandler, 1962), p. ix.
3. Joseph A. Litterer, *Analysis of Organization*, 2nd ed. (New York: Wiley, 1973), p. 5.
4. *Ibid.*, pp. 6-7.
5. Lawrence J. Korb, "An Analysis of the Congressional Budget Act of 1974," *Naval War College Review*, Spring 1977, pp. 40-52.
6. Graham T. Allison, *Essence of Decision* (Boston, Mass.: Little, Brown, 1971), pp. 69-71.
7. H. H. Gorth and C. Wright Mills, eds., *From Max Weber: Essays in Sociology* (New York: Oxford University Press, 1946), pp. 196-204.
8. James C. Thompson, *Rolling Thunder* (Chapel Hill: University of North Carolina Press, 1980), pp. 108-109.
9. Robert K. Merton, *Social Theory and Social Structure* (New York: Free Press, 1957), pp. 195-199.
10. "Desert One Revisited," *The Washington Post*, editorial, 31 August 1980, p. D6. This opinion is shared by the author, who has read the Holloway Report in its entirety.
11. Herbert A. Simon, *Administrative Behavior* (New York: Free Press, 1976), pp. 169-171.
12. Graham Allison and Peter Szanton, *Remaking Foreign Policy: The Organizational Connection* (New York: Basic Books, 1976), pp. 21-22.
13. The Arms Control and Disarmament Agency was created in 1961 (vested) for the purpose of giving institutional voice to that serious problem. Recent history has shown that the weight possessed by the Agency is not all that substantial with the President, State, and DOD all participating/controlling to some degree.
14. Allison, p. 83.
15. James G. March and Herbert Simon, *Organizations* (New York: Wiley, 1958), p. 150.
16. James L. Holloway III et al., "Rescue Mission Report," Report prepared for the Joint Chiefs of Staff concerning the Iranian hostage rescue attempt, Washington, D.C.: August 1980, pp. vi; 17-18.
17. *Ibid.*, p. 87.
18. Philip Selznick, *Leadership in Administration* (New York: Harper and Row, 1957), p. 8.
19. Goodsell, p. 62.
20. *Ibid.*, p. 63.
21. *Ibid.*, p. 145.
22. David R. Hampton et al., *Organizational Behavior and the Practice of Management* (Glenview, Ill.: Scott, Foresman, 1968), p. 185.



IN MY VIEW . . .



Tom Oliver

Convoying: Strategic and Tactical Realities

Sir,

I read with interest the article "Four Iron Laws of Merchant Shipping" in your May-June issue and the subsequent letter, "Iron Laws at Work," in the Autumn Review. As excellent as the original article is, the observations offered by Lieutenant Commander Boyer are persuasive. However, there are elements of both strategic and tactical reality to which both authors may not have given full credit.

With regard to Commander Williams, perhaps one might suggest a fifth law—the strategic importance of convoying is directly proportional to the length of the war. In his final section, "The 'Iron Laws' and the U.S. Navy Today," Commander Williams cites the "come as you are" concept to argue that the major arsenals of either side cannot be rebuilt over night. This truth compels the current drives to pre-positioning of equipment, smart weapons and highly trained professional regular forces, as these will surely be the type of factors critical in a short war. The total force of the "Iron Laws" argument is felt when the war lengthens and nuclear stalemate prevails. The Soviet Navy can then shed its combined arms, defence of the motherland and strategic deterrent role, releasing a gradually increasing flood of maritime assets. The Soviets can then adopt their potentially most effective maritime strategy in the protracted, conventional "guerre de course," thereby slowly strangling NATO and draining its will to resist. It is beyond my capacity to predict whether the next war will be short or long, but I will observe that the prudent Navy should be prepared for either case.

With regard to Lieutenant Commander Boyer's observations on the Iron Laws which are more tactical in nature, he offers the idea that present nuclear submarines and their long-range weapons are free from the limiting lines of submerged approach problem. Nuclear submarines trade covertness and speed inversely; those who wish to survive will trade cautiously as well. Speed is therefore bought at the cost of the detection opportunity offered. The Soviet submarine, which frequently exploits its speed capability, is in all probability destined for "early retirement." Further

submarine weapons, no matter how smart, are not infallible, therefore with all weapon systems there is a point blank range (most submariners will reluctantly agree it's closer than you think). Submarines that kill effectively do so from point-blank range regardless of the weapon used (*vide Belgrano*). These two practical factors mean that the limiting lines problem still applies to nuclear submarines (albeit with expanded lines due to increases in technical capability).

The example of the air attacks off Norway in WWII is intriguing but probably misleading. The submarine cannot reattack with impunity because it leaves a datum. Whereas an aircraft datum's usefulness decays very quickly at an exit speed of several hundred knots, a submarine, even at noisy maximum speed or more particularly at silent slow speed, leaves a datum that can be either evaded or prosecuted for some time thereafter. Because of the new generation of long-range ASW sensors and reactive vehicles (especially aircraft) any submarine (postattack) should be subjected to a vigorous counterattack (once again, regardless of the weapon system being used by that submarine). I therefore suggest that because of the total combination of the problems prior to attack (i.e., counterattack) potential that NATO possesses, the prospects for Soviet submarine SLOC interdiction still resemble most closely that traditional submarine problem rather than the paradigm change suggested by Lieutenant Commander Boyer.

In the section of his article "Why Convoying Works," Commander Williams most accurately identifies the principles of war that support convoying: Concentration of Force, Economy of Force and Bringing the Enemy to Decisive Action. Commander Williams then goes on to identify the different but mutually supportive roles that the close escort and other support groups will find themselves in. This situation bears further analysis because here is, possibly, the new dimension that puts an apparently novel form to old substance. For example, current land operations consider vastly enhanced sizes of battlefield. The traditional forward and reserve echelon definitions begin to blur (i.e., FOFA, etc.) and the entire TVD becomes an attack or defense zone in current Soviet thinking. Maritime strategy must absorb, comprehend and articulate this change in dimensional scale. The battle area becomes an entire ocean area and the convoy transiting the Central Atlantic becomes an integral part in the strategic and *tactical* plan in the North Norwegian Sea (for instance by employing an overt Emcon to lure attack effort away from battle groups in distant parts of the ocean or vice versa).

The key to this entire oceanic patchwork quilt of operations is positional intelligence. With superior positional intelligence, all units of the Soviet Fleet, whether air, surface, or subsurface, can be brought to battle under favourable conditions. As Sun Tsu said "Therefore those skilled in war bring the enemy to the field of battle and are not brought there by him." The vast scale of surveillance systems and speed of modern communications can allow us to dominate entire ocean areas and then choose our most favourable means of engagement. The principles of war outlined by Commander Williams still hold good and therefore with the aid of our strategic surveillance systems (e.g., SOSUS and satellites) we can turn the convoy problem from a potential liability into a potential asset.

G.M. Day
Lieutenant Commander
Canadian Forces Maritime

High Seas Interdiction

Sir,

In a letter published in the Winter 1987 issue of the *Naval War College Review*, Lieutenant Commander J.G. Simpson, USCG points out correctly that the Coast Guard does routinely interdict foreign flag suspected smugglers far outside of any protective zone generally recognized in international law. He acknowledges that there are certain legal intricacies involved in firing on another country's vessels and suggests that drug interdiction be added to the discussion of the use of force at sea.

In fact, drug interdiction and the interception of illegal immigrants, like liquor interdiction during the 1920s, does create potentially major legal, and therefore political problems. In the main these have been solved, where feasible, by treaty. Occasionally, where an interdiction has occurred without a treaty to support the action against a foreign flag vessel, diplomatic correspondence has smoothed things over. Occasionally it has not. A recent case in which an interdiction unauthorized by treaty was upheld, makes it clear that the courts, in construing the Act of Congress that seems to authorize action to enforce our laws on foreign flag vessels outside American waters, will construe the Act with an eye to the diplomatic situation. In *United States v. Gonzalez* (U.S. Ct. App., 11th Cir.) 776 F.2d 931 (1985), it was a telephoned permission from Honduran officials that seemed to be the key to upholding the legality of the seizure, and one of the appeals court judges indicated that he thought this the outer limit of the authority given the Coast Guard in the *Marijuana on the High Seas Act*. The Act itself requires that any interdiction on the "high seas" be permitted by a treaty or "arrangement" (apparently a telephone call will suffice in at least some cases) between American authorities and the officials of the foreign country involved. Thus, the interdictions are considered valid by U.S. law and by international law as interpreted by the American courts.

A word of warning is still appropriate: If the foreign government involved does not agree with our interpretation of international law, no amount of American legislation or American court action will save the United States from considerable embarrassment. Our evaluation of the importance of the antismuggling effort and the moral value of our interdiction is not binding on foreign statesmen, as their evaluations are not binding on us. Disagreements about it are settled by diplomatic means and can involve tensions that are far worse than the interdiction was worth.

Alfred P. Rubin
Professor of International Law
The Fletcher School of Law
and Diplomacy

Hard Times

Sir,

I was sorry to read that the *Naval War College Review* publishing schedule has been reduced to that of a quarterly. I have enjoyed the *Review* for a long time and

frequently have used it in my various research efforts and to keep up with the new literature on national security. I know that it can be of little consolation to you, but the *Air University Review* has fallen on even harder times. It appears to me that we are moving in exactly the opposite direction from where we ought to be going. As military power in the most simple terms is made up of men, material and ideas, and as the budgetary constraints are limiting the numbers of the first two, then we can only sustain our power for peace and security through the stimulation of new ideas. We ought to be building up our professional journals, not tearing them down!

David R. Mets
Lieutenant Colonel
U.S. Air Force (Ret.)

New Directions

Sir,

Having been a reader of and contributor to the *Review* for years, I am pleased at the attention that maritime strategy (especially in regional context) is getting on your pages. We use many of the articles, comments, and book reviews in the development of curricula here at the Naval Postgraduate School.

The Secretary of the Navy has recently instructed the School to implement a new series of courses for all Navy and Marine Corps officers who attend. These courses will include: military history, maritime strategy, defense organization, and recent developments in naval warfare. We expect the first of these courses, history, to be offered in the summer of 1987 and maritime strategy in the fall.

I thought your readership would be interested in the new tact being taken at the Naval Postgraduate School. This new departure, stressing maritime affairs/naval warfare, will require additional faculty for the Department of National Security Affairs—those with strong academic credentials in areas that demonstrate relevance and service to the Navy.

Commander James Tritten, U.S. Navy, Chairman
Department of National Security Affairs
Naval Postgraduate School
Monterey, California

Gross Sinner?

Sir,

This commentary will be confined mostly to my eyewitness knowledge of Admiral Fletcher's actions and inactions at the Invasion of Guadalcanal and the Battle of the Eastern Solomons. It is the events which were omitted by Lieutenant Commander Butcher that tarnish Admiral Fletcher's record in these actions.

I have no quarrel with Commander Butcher's account of Admiral Fletcher in earlier actions. However, Butcher says that Fletcher was battle-tested. I know of no battle our Navy fought in World War I. I noted that Admiral Fletcher was a Medal of Honor winner and was impressed until I read a list of Medal of Honor winners. There were an inordinate number (24) of junior naval officers who won the Medal of Honor in the Vera Cruz operation. One wonders if Admiral Nimitz' affinity for him arose when Fletcher was Assistant Chief of the Bureau of Navigation. Admiral Nimitz was Chief of that Bureau (later the Bureau of Personnel).

I should mention that I was, at the outbreak of the war, the Assistant Gunnery and Anti-Aircraft Officer of the U.S.S. *Enterprise*. We, too, were in the vicinity of Wake Island when it fell. Just before the war, *Enterprise*, with three cruisers, nine destroyers and no tanker, took 12 fighter planes to Wake and returned on Pearl Harbor day. We fueled the small boys going and coming from the heavy ships and went into Pearl for fuel on December 8th. Why didn't Admiral Fletcher attack Wake and fuel afterward? If commanders are going to fail to attack because a tanker *might* be sunk, battle might never be joined.

I must say that Admiral Fletcher had an obsession about fueling. It always seemed that when action was imminent, he was either fueling or searching for fuel. There were those unkind enough to say that he would rather fuel than fight. In the Invasion of Guadalcanal and particularly in the Battle of the Eastern Solomons, this obsession caused unnecessary and damaging results that greatly changed the outcome of the operation. I will expand on this later.

Admiral Fletcher was the first to command a carrier task force in the carrier-to-carrier duel in the Coral Sea. Certainly the *Lexington* was sunk from whatever cause and *Yorktown* was damaged. But the Japanese lost the light carrier *Shoho*, the *Shokaku* was badly damaged, and the Japanese had to withdraw. It is fair to conclude that we had not only won a strategic victory but the Japanese offensive in the Southwest Pacific was stopped. As to the claim of Richard W. Bates at the War College that the detachment of the surface action force to attack Port Moresby was wrong because it reduced the antiaircraft defenses of the carriers, I find it almost laughable. Ships on the screen in most cases contributed very little to the defense of the carriers in a dive-bombing attack because of the deflection factor and the short range of the automatic weapons. The carriers, on the other hand, have a no-deflection shot as the bomber is diving straight at them, and the carrier's gunners were their own best defense.

Admiral Fletcher was at Midway too and was senior officer present, although tactical command was ostensibly vested in Admiral Spruance. Admiral Fletcher sent a search group to find the enemy carriers and sent a strike group from *Yorktown* which sank the carrier *Soryu*. So, at the time of the Invasion of Guadalcanal he was our most experienced commander in carrier-to-carrier operations. Even Admiral Halsey had never participated up to that time in a carrier duel. I reject the mystique that one has to be an aviator to command a carrier task force. The British got on very well with nonaviators, including carrier captains.

Butcher states that in the Invasion of Guadalcanal we were short of almost everything including ships, and that it was correctly dubbed operation "Shoestring." I thought we had an extremely powerful force. Consider this composition: A total of

82 ships, including 23 transports, 3 aircraft carriers, 1 battleship, 11 heavy cruisers, 2 light cruisers, 30 destroyers and 4 minesweepers.

Before the invasion, a conference of all the admirals and element commanders was held on the *Saratoga*. Admiral Ghormley did not attend the conference but his deputy, Rear Admiral Callaghan, attended. Vice Admiral Fletcher was the commander of the expeditionary force and presumably responsible for the coordination and success of the invasion. At the conference he announced that he would not risk his carriers within range of Japanese land-based air for more than 48 hours. This brought strong opposition from Admiral Turner. But Admiral Fletcher would not budge. This decision meant that air support would be denied the transports at the time when the enemy response to the invasion would probably be at its peak and the transports would be only half unloaded. It doomed the complete success of the invasion from the outset.

As pointed out by Butcher, Fletcher's orders contained the statement: "You will be governed by the principle of calculated risk which you shall interpret to mean the avoidance of your force to attack by *superior* force without good prospect of inflicting, as a result of such exposure, greater damage to the enemy. This applies to a landing phase as well as preliminary air strikes." I call this a political, general, prudential statement designed to inform Fletcher he was on his own, and to cover everyone up the line in the event of a carrier disaster. It did not tell Admiral Fletcher he was to withdraw after any arbitrary time limit and abort the unloading operation for lack of air support. In the actual event, the striking force withdrew after 36 hours without sighting *any* Japanese aircraft. Were land-based bombers a superior force?

Let's analyze what we knew about land-based air at the time. The *Enterprise* was attacked by 5 twin-engine land-based bombers in glide formation on 1 February 1942. When the automatic weapons bit into them, they pulled up sharply and their pattern of 15 bombs missed on the port side. One was smoking and pulled up astern and came in to crash the ship. The pilot was killed by AA fire and the plane missed the ship. Hours later two more made an ineffective high altitude run on the ship and were disposed of. (At Midway, U.S. Army Air Force land-based planes dropped hundreds of bombs on the invading Japanese forces and made no hits.) Finally, Admiral Fletcher had the experience of his own transport force and escorts on the 7th and 8th of August. On the 7th, they withstood and beat off an attack of 25 twin-engine bombers with bombs. Our forces had no casualties. On the 8th, they were attacked by 40 twin-engine bombers with torpedoes. The destroyer *Jarvis* was hit and damaged. The torpedo bombers avoided our fighters stacked over Savo Island by coming in over Florida Island. Antiaircraft fire alone exacted a heavy toll on these bombers, and by now Japanese on Rabaul must have been running low on planes. Only the destroyer *Jarvis* was hit. Surely a powerful carrier task force could take care of itself.

By far the most important omission to me was the failure to send a morning search group on the 8th of August in a sector covering the slot and to the northwest where Japanese surface forces might be expected. If Japanese carriers were around, that was the way to find out quickly. It is true that we had a land-based air-search plan that included PBYs. There was a demarcation line up the slot that marked MacArthur's sphere of command. But a protective early morning search from the carrier was standard operating procedure. Nothing should prevent a carrier task force

commander from protecting his flanks to keep from being blind-sided. A morning search was a prudent thing to do. Had it been undertaken, they would have discovered 7 Japanese cruisers and 1 destroyer 30 miles east of Bougainville and 40 miles northwest of Choiseul. They had sent their float planes in to scout the invasion. We could have hit them all day long.

But we didn't know about them until a message was received about 1630 from an Australian coast watcher on Vella Lavella Island. It reported 7 Japanese cruisers and 1 destroyer passing and gave their course and speed. I plotted it on a chart and it showed their arrival off Savo Island to be about 0100. At that time of year in the Southern Hemisphere, daylight lasted until about 1900. We thought we were going to make a strike. Commander John Crommelin, Air Officer of the *Enterprise*, asked Admiral Kinkaid of our task group to request permission to send a strike but was refused curtly. Admiral Noyes recommended no air strikes be made because they might not get back until after dark and some of our pilots were not trained in night carrier landings. The irony was that the *Wasp* had just returned from the Mediterranean where her pilots had fully qualified in night carrier operations and had engaged in some while there. Privately, many officers of the *Enterprise*, including aviators, were highly critical of our failure to strike the oncoming cruisers.

After the recommendation, Admiral Fletcher sent Admiral Ghormley, Commander South Pacific Force, the following message: "Fighter plane strength reduced from 99 to 78. In view of large number of enemy torpedo planes and bombers in this area, I recommend withdrawal of my carriers. Request tankers be sent forward as fuel running low." One historian pointed out that 78 fighters was one more than we had in the Battle of Midway. It is true our fighters could not match the Zero then and our pilots were perturbed, but they did an excellent job of destroying many Japanese land-based planes anyway. The carrier task force had not sighted a single enemy plane. Fuel reports of the striking force showed *Enterprise* and *Wasp* with 12 days steaming remaining, *Saratoga* with 10 days, cruisers over 60 percent and destroyers well off. The phrase running low on fuel was a false assessment by any reasonable standard and seemed designed to gain Admiral Ghormley's acquiescence to the withdrawal. It might be well to mention here that Admirals Ghormley, Fletcher and Noyes were Naval Academy classmates of the class of 1906.

Admiral Fletcher's plans were to leave the area at once and go to a prepositioned point to the southeast to await a reply to his message, and this he did. But that is not the worst thing that happened. The message from the Australian coast watcher was not passed on to Admiral Turner and the fire support groups. They were caught unawares and unprepared for the Japanese cruisers and in the early morning hours suffered a major defeat. Four of our cruisers were sunk, *Astoria*, *Quincy*, *Vincennes* and *Canberra*. The *Chicago* was heavily damaged. Casualties were 1,000 dead and over 700 wounded.

If Admiral Fletcher were not going to intercept the cruisers, the least he could have done was to be sure Admirals Turner and Crutchley had the coast watcher's message. Then he could have sent in the battleship *North Carolina* to augment the surface power of the invasion force in our favor. He did neither!

It is not known if Admiral Ghormley received the coast watcher message. If he did, it is reasonable to assume he would have ordered Fletcher to remain in the vicinity to hit the retiring cruisers in the morning.

In regard to the withdrawal, I can only quote Admiral Lord Nelson who said "Whenever England has an enemy, her ships must definitely be put at risk. That is why they were constructed."

Shortly after the cruisers were attacked, Turner sent Fletcher a message saying "Surface attack on screen . . . *Chicago* hit by torpedo, *Canberra* on fire." Captain Forrest Sherman in *Wasp*, with an air group especially trained in night operations, asked Admiral Noyes three times for permission to speed northwestward with his escorts and attack the retiring cruisers. Admiral Noyes refused three times to even forward the request to Admiral Fletcher. But shouldn't Admiral Fletcher have initiated that action himself? It was his last chance to inflict damage on the enemy, which was not a superior force either.

After the cruiser attack and Admiral Fletcher's withdrawal, Admiral Turner was forced to cancel further unloading of the transports and leave the area. This left the marines stranded without needed supplies and equipment.

Butcher gives Admiral Fletcher's reasons for his withdrawal and I will comment on them. First, it should be noted that the reasons make no reference to being short of fuel or of the torpedo bombers which so intimidated him.

- "Overall U.S. carrier strength in the Pacific was four ships."

Comment: See Admiral Nelson's dictum above.

- "No replacements . . . were in sight for another 9 months."

Comment: True, but because of this he failed to carry out his mission. He was sent down there to do a job, not to withhold use of his ships under circumstances that failed to indicate the presence of superior forces.

- "The Japanese Navy could put more carriers in the Guadalcanal area than [he] could [four vs. three]."

Comment: There were no Japanese carriers in the vicinity at the time of the invasion. They did not appear until almost 3 weeks later at Eastern Solomons. I don't know where Admiral Fletcher got his count on the Japanese carriers. Of the 6 first-line Japanese carriers at the outbreak of the war, 4 were sunk at Midway. Only *Zuiaku* and *Shokaku* remained. They had some light carriers (48 planes) such as *Ryujo*. If we were not to get any new carriers for 9 months, how long would it take the Japanese to replace theirs?

- "Japanese land-based air (high level bombers, dive-bombers and torpedo planes) was present and offensively active."

Comment: Did he expect to have no opposition to the invasion? Why was he there? Actually the land-based planes on 8 August were cut to pieces by antiaircraft fire of the transports, cruisers and destroyers. We, in the carriers, had not been discovered by the Japanese.

- "His instructions from CINCPAC were positive and limiting in regard to risking the carriers."

Comment: I don't read the instructions that way. Were torpedo bombers a superior force? I can't believe Admiral Nimitz would so restrict him that he couldn't carry out his mission.

- "Enemy subs were on their way to attack Tulagi occupation forces in the Guadalcanal area."

Comment: True. I believe there were four on the way. Our carrier task force had speed and destroyers. Further, we had not been discovered. This is further evidence of Fletcher's fearfulness and timidity. We weren't even near Tulagi.

Let us now go to the Battle of the Eastern Solomons. The Japanese had decided to recapture Guadalcanal and sent down a strong invasion force to land 1,500 elite troops. Our carrier task force, with 3 carriers—*Saratoga*, *Enterprise* and *Wasp*—was near the Eastern Solomon Islands. On the 23rd of August 1942, a PBY discovered and reported the Japanese transport group coming down. A powerful strike was ordered from the *Saratoga* and from Guadalcanal. The transport commander had turned north, however, after the PBY sighting. The weather was bad and the strike groups found nothing and returned. But Admiral Fletcher knew an invasion force was coming down and it was reasonable to assume it would be escorted by heavy ships and aircraft carriers for air cover. It was at this juncture, then, the evening before the battle, that Admiral Fletcher chose to detach the *Wasp* and her group to go south to refuel. The result was that instead of having 3 carriers to oppose the Japanese the next day, we only had 2. Further, the *Wasp* was fueled previously, at the same time as the *Enterprise*, and the *Enterprise* had better than 60 percent fuel remaining. A great victory might have been achieved had the *Wasp* remained with us.

We actually faced two first-line Japanese carriers next day plus a light carrier. *Enterprise* was heavily damaged by three bomb hits and the Japanese light carrier *Ryujo* was sunk. *Zuikaku* and *Shokaku* were undamaged, although the latter received two near misses from *Enterprise* scouts. If we won a strategic victory, it was because fighter planes and antiaircraft gunners cut to pieces a Japanese air group. *Enterprise* gunners alone brought down 15 planes. The two Japanese carriers then proceeded home for replacement planes and pilots, leaving the transports without air cover. Marine and *Enterprise* planes from Guadalcanal on 25 August attacked the transport group and forced it to turn back.

Space does not permit refutation of Butcher's convoluted thinking about the Battles of Santa Cruz and Guadalcanal. Actually, antiaircraft fire from *Hornet* and *Enterprise* cut to pieces 4 Japanese air groups at Santa Cruz. *Enterprise* gunners alone shot down 30 planes. This left them without air power at Guadalcanal although they had 3 undamaged carriers. However he comported himself in other engagements, Admiral Fletcher was neither aggressive nor battle-minded at Guadalcanal.

His fearful preoccupation with the safety of the carriers prevented him from using them effectively to protect our invasion forces and insure a successful invasion. As commander of the expeditionary force that was his responsibility, yet he acted as though the invasion forces were an independent element on their own. His failure to pass along the message from the coast watcher at Vella Lavella, at best, was an oversight that showed a callous disregard of the invasion forces.

Detaching the *Wasp* one day before the Battle of the Eastern Solomons to refuel defies the imagination. Some have said Admiral Fletcher didn't know the Japanese carriers were coming down. He knew an invasion force was coming down. He knew the Japanese knew we had carriers in the vicinity. It follows that the Japanese would provide carrier air cover for the invasion force.

Why couldn't Admiral Fletcher have waited one day to refuel the *Wasp*? The answer is that he could have waited. The *Wasp* and her group had plenty of fuel!

Certainly Admiral Fletcher's conduct of operations at the Invasion of Guadalcanal and the Battle of the Eastern Solomons was not derived from any doctrine taught at either the Army or Naval War Colleges.

Perhaps I am prejudiced because the *Enterprise* was Admiral Halsey's flagship. During the first six months of the war I watched him on the flag bridge below my battle station in sky control. I know what he would have done to the Japanese cruisers on 8 August 1942.

When I graduated from the Naval Academy in 1930, I was assigned to *Lexington*. My first commanding officer was Captain Ernest J. King. I'll trust Admiral King's final judgment as Cominch as regards Vice Admiral Fletcher.

I agree with Lieutenant Commander Butcher in one respect; the truth is the first casualty of war. Could it be because sometimes all the facts are not known?

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Irvine, California

Pioneer Warrior?

Sir,

Lieutenant Commander Butcher's article in the Winter issue, "Admiral Frank Jack Fletcher, Pioneer Warrior or Gross Sinner?" addresses a most interesting aspect of Pacific combat operations and personalities during that most difficult, crucial year, 1942. The issues raised are worthy of additional study. With the overwhelming superiority of 1944-45, tactical errors were not crucial. In 1942 they could have been fatal.

In the area of personality conflicts, Admiral Fletcher may have suffered from his long (5 months) association with *Yorktown* (CV5) and the ambitions of the then commanding officer of *Lexington*, in addition to the adverse opinion of Admiral King.

The then commander, Jocko Clark, was executive officer of *Yorktown*, and not air group commander as stated by Lieutenant Commander Butcher. He detested most of the ship's officers and particularly the department heads. The feeling was reciprocated. Morale, enthusiasm and self-confidence were restored with his replacement by the magnetic Dixie Kiefer. Admiral Clark's bad-mouthing of *Yorktown* did not cease with his 1942 comments in Washington. They continued on in his published memoirs and in the writings of his spokesman, Professor Clark Reynolds.

The protection of the career ambitions of *Lexington*'s captain was more subtle, but possibly equally damaging to Admiral Fletcher's reputation. *Lexington*'s performance in the Coral Sea battle left much to be desired, especially in the disposition and control of the combat air patrol defending the force. Admiral Fletcher, during the days leading up to the battle, considered taking air control away from Rear Admiral Fitch who was in *Lexington*, but did not do so because Admiral Fitch was an aviator

and he was not. The ex-commanding officer of *Lexington*, in his capacity as acting chief of staff to Admiral Fitch after *Lexington*'s sinking, directed *Yorktown* to revise its battle report by deleting recommendations for better deployment of the force's defensive combat air patrol.

This protective interpretation of events—cover-up, if you will—like Admiral Clark's derogatory comments, also lingered on in the written record. The commemorative booklet, *75 Years of U.S. Naval Aviation*, published by American Heritage, described the Coral Sea battle as “a confused and muddled affair.” It also states that “Fletcher had committed his cruisers to fight Japanese surface ships, leaving only four destroyers to screen the *Lexington* and the *Yorktown*. This is simply not true; there were five heavy cruisers and seven destroyers. The implication is clear, however. The loss of *Lexington* was Fletcher’s fault.

A postscript to these events was the decision not to award *Yorktown* a unit citation in the postwar review of such citations. The unofficial explanation was that *Lexington* was not considered deserving of a citation and that if one were given to *Yorktown*, *Lexington* would have to get one also.

I was delighted to read Lieutenant Commander Butcher’s defense of Frank Jack Fletcher’s record. His reputation has too long suffered from unfounded criticisms.

J.E. Greenbacker
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Halifax, Virginia



PROFESSIONAL READING

Of Tactics, Doctrine and Rules Made to be Broken

Captain David G. Clark, U.S. Navy

Hughes, Wayne P. *Fleet Tactics: Theory and Practice*. Annapolis, Md.: Naval Institute Press, 1986. 316pp. \$21.95

"There is nothing, absolutely nothing, half so much worth doing, as simply messing about in boats."

It was 1972 when I was reintroduced to that quote from *Wind in the Willows* upon finding it engraved in brass and hanging on the paneled wall of Wayne Hughes' den in Norfolk. It epitomizes the philosophical bent of our Navy's leading scholar and teacher of naval warfare. Wayne has spent his lifetime comprehending the conflicts of mankind at sea and mastering warfare in that environment. Political expediency is not in his nature—he is one of those gifted naval officers who has been willing to do what is essential to advance our ability to fight at sea. Through command at sea, duty in the Pentagon, loyal service on fleet staffs and years of operations analysis, he has earned the right to be heard. Now he has written the first authoritative work on naval tactics since the late thirties when Admiral and Mrs. S.S. Robison wrote *A History of Naval Tactics from 1530 to 1930*.

After a Navy career in Surface Warfare, including destroyer command, Captain Clark joined the Operations faculty at the Naval War College; he is now the College's Director of Continuing Education.

Captain Hugh Nott, late of the Naval War College and cut of the same cloth, assisted in the conception of this work and would have been the coauthor had he lived. Hugh would have been proud of this work.

As the author states in his introduction, there will be four groups of readers of this book:

- First, it "is intended to reawaken interest among the American naval officer corps in the study of tactics."
- Second, it is for the layman who "speaks with more eloquence than the navy's blue uniformed theologians and at his best offers wise and detached insights over the years."
- Third, it is aimed at ". . . the youngster of about thirteen years (for whom) I want to fill the void in the literature of tactics"
- And last, ". . . a fourth and uninvited reader. He is in the Soviet Academy of Science, and he is the one person I am sure will not only read but study and dissect this book."

All four of Professor/Captain Hughes' audiences will find something of value in this text. And each will be frustrated that the topic is not wrapped up neatly in a manner which could resolve all disputes. Both the historian and the futurist will be intrigued by his thoughtful historical analyses. The operations analyst will be fascinated by his pragmatic approach to naval warfare and the conclusions he draws. It should be inspirational reading for the downtrodden Washington naval commuter after a long day of five-sided frustration on the banks of the Potomac.

First, a premise: you cannot have tactics without doctrine. For years the U.S. Navy has shown great reluctance to establish doctrine. Some reasons are quite valid; as the author points out when appreciating his fourth (Soviet) readership, "I hope I have been suitably enigmatic in matters of current U.S. Navy doctrine." According to Hughes, "*Doctrine* is one of the military's most elusive words. The U.S. Navy has usually avoided the problem by ignoring it. This is unfortunate. Doctrine as a concept and as a practice should be carefully delineated and put to work." Early on he states that "Doctrine unites action . . . influences and is influenced by training, technology, tactics and objectives . . . should be specific, designed to achieve the best results from a united team, but should also allow room for inspired tactics and initiative."

Where is today's U.S. Navy doctrine? The U.S. Army has *FM 100-1* and *FM 100-5*; the U.S. Air Force has *AFM 1-1*. For an unclassified Navy source we are referred to *NWP-1, Strategic Concepts of the U.S. Navy*. But that's a sausage and as an old Vermonter would say, "It looks and smells appealing, but once you get it skinned and gutted there ain't much to it." The few useful pages are Washington management and programming generalities. If not there, then where? In platform manuals written by civilian consultants? In NWPs prepared by well-meaning but overworked committees of naval officers? In

the hearts of a few dedicated officers concerned with winning at sea rather than in not losing in the Pentagon? Or is it too highly classified to be shared with those who must execute it?

Can we learn about doctrine from RCA's designers of the Aegis system? Here the doctrine for every contingency is programmed beforehand, then the computer is left to operate the weapon systems of the *Ticonderoga* class with man overriding only at high risk. The immense volume of today's battle space, combined with the high speed of and short reaction time granted by today's weapons, has forced this. Shooting from the hip is no longer a solution, if it ever was.

Navies of today will be no more precise in executing doctrine than in Nelson's navy. Naval combat operations entail competition with a desperate enemy, making decisions under risk of death, while shrouded in the "fog of war." An analysis of any of Nelson's battles shows little similarity to the neat tactical precision he set down *a priori*. Yet, thanks to his memoranda and the inculcation of his captains with flexible doctrine, his outnumbered fleet would prevail at Trafalgar despite his death during battle, and then with only signals that were more inspirational than educational, sent to "amuse" his men. On the other hand, Admiral Villeneuve, who had witnessed "the Nelson touch" firsthand off Aboukir Island seven years before, seemed to shrug and advise his captains rather to look to their own "courage and thirst for glory, than to the signals of the commander-in-chief" for guidance during this battle, because he would be occupied with the enemy himself and his signals would be "shrouded in smoke."

The unfortunate indifference to doctrine noted by Hughes is not a new perception. The 1915 U.S. Naval Institute *Proceedings* Prize Essay by Lieutenant Commander Dudley W. Knox was entitled "The Role of Doctrine in Naval Warfare." Knox said that "the first and most essential step in the process of indoctrinating a military service as to ensure co-ordinate action during hostilities is to improvise and formulate a concrete, comprehensive and coherent *conception* of modern war." He went on to say that this task "necessarily involves profound and exhaustive study and analysis of naval campaigns, followed by closely reasoned constructive work. In the absence of genius this can be done properly only by a reflective body of officers, qualified from sea experience and professional study, and also by systematic education and training in the methods of war such as may be acquired at our Naval War College."

The U.S. Navy's current maritime strategy has provided us one conception of future war. There are, of course, others. Wayne Hughes has provided us with the first authoritative text on operational art and U.S. naval tactics in nearly 50 years. From these beginnings perhaps we now can derive the necessary doctrine—not to constrain or inhibit future commanders but to offer a point of departure. Just as the best of chefs must go to a cookbook on

occasion, so future tacticians will have a body of tried and proven recipes to fall back on when their creative genius is stifled by the shock and exhaustion of war.

The author offers some fine points for consideration from which to build. His first and last fundamental maxim is to *Attack Effectively First*. He is apologetic that neither he nor Hugh Nott could find a more elegant turn of phrase. There's nothing wrong with that being the tip of the sword. This also follows closely the conclusion drawn by Admiral and Mrs. Robison fifty years ago, "Naval history shows that the most important tactical maxim is—Attack." Hughes goes on to state that *Scouting* is critical—scouting in its broadest sense to include "reconnaissance, surveillance, and all other means of ascertaining and reporting tactical information to a commander and his forces."

Those tenets are further expanded into his five "cornerstones":

1. "Leadership, morale, training, physical and mental conditioning, will power and endurance are the most important elements in warfare."
2. "Doctrine is the companion of good leadership."
3. "To know tactics you must know weapons."
4. "The seat of purpose is on the land."
5. "Attack effectively first."

He lists "The Great Constants" as: Manpower, Firepower, Counterforce, Scouting, C² and C²CM. Then he examines the trends observed, *inter alia*:

- Speeds, range accuracy and lethality of weapons have outstripped the speed, range and ability of ships to counter them.
- Staying power (survivability) has not kept up with weapon lethality.
- Forces today are physically more spread out as an antiscouting measure with C² and weapon range used to concentrate firepower.
- Submarines and airplanes were first designed as "scouts"; aircraft vs. aircraft and aircraft vs. submarine battles soon followed. So, scouting from space will lead to battles in space.
- Capabilities in C² are hard pressed to keep up with the demands placed upon it.

In his concluding chapter, "Anchorage," the author regrets the sights not seen in this circumnavigation of the tactical world. But no apologies are needed. My father taught me 40 years ago that a piece of rock maple is never split by attacking the heartwood directly, even with the sharpest ax or heaviest maul. You chip away at the outer rings until the center is manageable. Wayne Hughes may not have satisfied himself that all that could have been stated had been published, but he certainly has made the problem easier for future students of the art of naval warfare, as he has gotten them closer to the heartwood.

He surveys other possible trails into the future that are worthy of exploration by those unafraid to choose, in the words of Robert Frost, "the path less traveled by." In the future we, perhaps, will say as did Frost, "and that has made all the difference."

Wallach, Jehuda L. *The Dogma of the Battle of Annihilation: The Theories of Clausewitz and Schlieffen and Their Impact on the German Conduct of Two World Wars*. Westport, Conn.: Greenwood Press, 1986. 334pp. \$45

Between 1832 and 1952, sixteen editions of Carl von Clausewitz' *On War* were published in Germany; fifteen of these, beginning with the second edition in 1853, were purposely falsified by inverting the author's recommendation—that the military commander be made a member of the Cabinet so that the latter could directly influence military planning—to read that the commander join the Cabinet in order to shape national policies. Even so, most German generals avoided the book like the plague: Wilhelm Groener "procured it only in later years"; Erich Ludendorff warned that officers could "get confused by studying it"; and Paul von Hindenburg, a onetime teacher at the War Academy, thought that *On War* warned against the encroachment of politicians upon the conduct of war! Even that most Clausewitzian of politicians, Otto von Bismarck, exclaimed "shame at never having read" the work.

Jehuda Wallach, colonel in the Israeli Defense Forces and professor of military history at Tel Aviv University, has admirably shown how well a closer reading of Clausewitz might have helped German military planners from Schlieffen to Hitler; especially Schlieffen, for he, having discovered the Battle of Cannae in Hans Delbrück's writings, quite forgot the timeless validity of

Clausewitz' teachings concerning friction, interaction, and the fog of war. The battle of encirclement became the shibboleth of victory. The mechanical schematism of the Schlieffen plan assumed without hesitation that the French were willing to play the part of Terentius Varro that Schlieffen had assigned them. To be sure, had Schlieffen read more of Delbrück, whom he decried as a "civilian strategist," he would have discovered that Hannibal had not been able to exploit his great triumph at Cannae, that he never appreciated Roman seapower, and that he eventually lost the war.

Nor is this all. German planners, from Schlieffen on, never managed to bring national policies and military strategies into line. Few remembered that the Elder Moltke's brilliant victories in 1866 and 1870 had been brought about largely by Bismarck's superb statesmanship. And in neither world war did the Germans coordinate their strategies with their major allies. Nor did they excel at army-navy (and later, air force) coordination or at economic planning for wars of long duration. Strategy over time was reduced to Falkenhayn's "Meuse grinder" at Verdun in 1916 and to Ludendorff's tactical breakthrough approach in 1918. And while Wallach would not count the Younger Moltke among the great captains, he nevertheless makes a cogent plea for more objective treatment of the man charged with carrying out Schlieffen's rigid operational plan.

Unfortunately, Wallach has offered a direct translation of the

German version of his book, first published in 1967. As a result, the invaluable literature published on the topic over the past two decades has gone unnoticed. This is especially critical for the latter third of the book, which deals with Hitler and his military paladins. It simply is dated and flawed. The publishers would have done well to omit it, or at least to have had the author rework it. In addition, they would have done well to include some maps and to check the spelling of well-known German political and military planners. This notwithstanding, the first two-thirds of the work dealing with the military under Wilhelm II is superb and offers English-language readers a welcome addition to the growing body of literature dealing with civil-military relations.

HOLGER H. HERWIG
Vanderbilt University

Coutau-Bégarie, Hervé. *La Puissance Maritime—Castex et la Stratégie Navale*. Paris, France: Librairie Arthème Fayard, 1985. 311pp.

Coutau-Bégarie, Hervé. *Castex, Le Stratège Inconnu*. Paris, France: Economica, 1985. 261pp.

Two recent books give, at last, an opportunity to understand in its fullness the thought of the greatest French naval strategist, Admiral Raoul Castex (1878-1968). A thirty-year-old historian, Hervé Coutau-Bégarie has rightly reestablished

"the unknown strategist"—unknown in France where care has always been brought more towards continental strategy, but also in countries where the maritime strategy is traditionally honored (Castex's work has never been translated into English).

An 1898 graduate of the French Naval Academy, Raoul Castex began to write as early as 1904. A student in the Naval War College in Paris at the outset of World War I, he spent his years in that conflict in the Mediterranean. Promoted to flag rank in 1928, he published five volumes entitled *Theories Stratégiques* between 1929 and 1935—theories directly originated from the lectures he gave at the French Naval War College. In 1937 Castex was considered for the position of Chief of Staff of the French Navy, but the appointment went to Admiral Darlan. Slowly eased aside by his successful competitor, he had to resign a few months before France's collapse in June 1940. He retired to his country house and continued to write till his death in 1968. A sixth posthumous volume, *Mélanges Stratégiques* was printed in 1976.

In his analysis of Admiral Castex's ideas, Hervé Coutau-Bégarie gives the greatest credit to the synthesis achieved between concepts strongly opposed up to then:

- The historical school, which seeks to isolate immutable constituents out of the military history, must be combined with the material school that emphasizes technical data, and from that union, extract strategic guidance.

- The search for the destruction of the enemy's organized forces is not exclusive of waging war on its lines of communication.
- There is no absolute determinism in the confrontation between the land and the sea. Castex preaches an adjustment to the natural constraints in setting up an amphibious military force. A maritime power must be able to project its forces ashore while the continental power has to deploy a maritime capability. Victory will reward the one who, a master in his own element, will be able to encounter his opponent on his own element.

In his thoroughly documented and perfectly legible survey, Hervé Coutau-Bégarie goes well beyond the mere analysis of Admiral Castex' unrecognized thought. He follows the same intellectual path that Raymond Aron entered in his famous *Clausewitz, Philosopher of War*.

Beyond the lapsed part of Castex' work, Hervé Coutau-Bégarie makes the best use of the concepts which are still relevant according to him. He uses them as a foundation for a better understanding of maritime strategy and geopolitics in the nuclear age and of the Soviet challenge with its Red flag now deployed on the seven seas.

The importance of Hervé Coutau-Bégarie's two books lies in the result of the trilateral research conducted upon Castex—his life, his works and the lessons of his works. The first book really deserves to be translated into English so that a thought which "represents perhaps the best synthesis between Mahan and the Jeune Ecole," according to Theodore Ropp,

could be at last recognized. At the same time, a second element could also be recognized, the shrewd quality of the updating work achieved by a young French scholar as impassioned by the maritime strategy, as Castex himself was.

MICHEL P. GEVREY
Commander, French Navy

Delbrück, Hans. *History of the Art of War Within the Framework of Political History: Vol. III, The Middle Ages*. Westport, Conn.: Greenwood Press, 1982. 711pp. \$55

Delbrück, Hans. *History of the Art of War Within the Framework of Political History: Vol. IV, The Modern Era*. Westport, Conn.: Greenwood Press, 1985. 487pp. \$75

The translation of the first two volumes of this work was noticed in the *Naval War College Review* (Winter 1979, pp. 104-105 and March-April 1981, pp. 109-111). With the publication of the translation of volumes 3 and 4, Brigadier General Walter J. Renfroe, Jr., U.S. Army (Ret.) has completed his monumental task and done great service to students of military philosophy, theory and history. Delbrück's work is indeed a classic which every serious student in these areas should read, and it is now made far more accessible in an English translation. However, Delbrück's intent was not merely to write for specialists in the narrow realm of military history. As he wrote in the introduction to the fourth volume, "Recognition of the mutual inter-

action between tactics, strategy, national organization, and politics throws light on the relationship of these subjects to universal history, and thus has clarified many points which were previously obscured or misunderstood. This work has been written not for the sake of the art of war but in the interest of world history . . . For the art of war is an art like painting, architecture or pedagogy, and the entire cultural existence of peoples is determined to a high degree by their military organizations, which in turn are closely related to the technique of warfare, tactics, and strategy."

For Delbrück, *The Modern Prac* ends with a discussion of Napoleonic strategy. The research for the final volume had nearly been finished in 1914 when war broke out, but the book itself was not completed and published until 1919. Since that time, there have been many advances in the field of military history and our knowledge about some issues has improved in detail, but the general thrust of Delbrück's work has not been seriously challenged. It remains the most detailed analytical study of the relationship of warfare to politics, covering 2,000 years of history. Most importantly for us at the Naval War College, Delbrück stresses the essential idea which is so important to our courses and research work: military and naval affairs are political matters, inextricably intertwined in the cultural and economic substance of nations.

JOHN B. HATTENDORF
Naval War College

Godson, Roy, ed. *Intelligence Requirements for the 1980's: Intelligence and Policy*. Lexington, Mass.: Lexington Books, 1986. 192pp. \$14.95

What sort of full service intelligence does the United States need for the rest of this century to carry out national security policy? What sort of intelligence policy is required to achieve it? These are the questions addressed in *Intelligence and Policy*—the final volume of a seven-part series that stems from a colloquium that involved 70 White House, Capitol Hill and CIA professionals.

This book consists of five essays—each written by one of the colloquium participants—on intelligence and the Presidency, intelligence and foreign policy, intelligence in formulating defense policy, covert action and counterintelligence as an instrument of policy, and the effectiveness of congressional oversight. Following each selection are comments by some of the other colloquium participants. At times they are more interesting and more readable than the main chapters. While Gary Schmitt's essay on oversight is so turgid that the reader fights every page, the subsequent discussion is sharp and provocative. The participants give concrete examples, including the revelation of AM LASH—the Cuban insider involved in the Kennedy administration's plots to assassinate Fidel Castro—and Jimmy Carter's disclosure to the Sandanistas of CIA data on Nicaraguan gunrunning to El Salvador. More than in the main essay, the discussion explains the dangers arising from some Congress-

men who seek political mileage by attacking the CIA and leaking classified information. "Select committees are supposed to attract the cream of the congressional crop. If quality control cannot be maintained by enforcing congressional rules, perhaps the criminal justice system should take care of the problem."

The quality of the essays ranges from excellent to just decent. Richard Pipes' tract on foreign policy is one of the best. In only five pages, he makes three original points: first, in its preoccupation with secrecy the intelligence community is overlooking a wealth of information about the U.S.S.R. that is available from open sources; second, Pipes urges the CIA to concentrate on long-term trends rather than on short-term predictions; finally, the intelligence community must not echo the medias' focus on personalities and events as opposed to processes. Pipes says it really is not so important who succeeds a Soviet premier. "What is important is what factions are battling right now for power in the Soviet Union, what they represent, and what kind of policy dominates their corporate identity." Such information is more accessible than many believe. In the general discussion, a Soviet defector explains that mid-level Soviet officials, "men in their 40's who really fashion the substance of policy," are "readily accessible to western collectors." He argues that this group, known as the Nomenklatura, should be approached and utilized.

Dr. Mark Schneider's piece on defense policy abounds with examples

of intelligence failures in the strategic nuclear area. Reading it produces a chilling cognizance not only of growing American vulnerability to a Russian first, second, and perhaps even third strike, but also of a persistent inability to recognize Soviet trends. The author says, "Unquestionably, the decisions of the last two decades on U.S. strategic forces were made against a backdrop of intelligence estimates that generally failed to give the defense planner an accurate assessment of the Soviet threat." Among other mistakes, this country has "bent over backward to downplay the Soviet military buildup," failed to predict the characteristics of the fourth generation Soviet ICBMs, and failed to detect the massive increase in Soviet civil defense efforts in the late 1960s. According to the author, American analysts and policy-makers have not been able to appreciate the raw data and make proper use of it. One participant observed that by trying to fit the enemy's actions into a matrix that comports with American value structures, we lose the ability to interpret realistically the intent of hostile societies. In the latter half of the 20th century, as the margin of error for survival narrows, this shortcoming is becoming especially dangerous.

Angelo Codevilla and Roy Godson provide one of the better overviews of covert action and counterintelligence as an instrument of policy. They latch onto hard examples to demonstrate that "when the stakes are high, covert action can be useful as an adjunct to public efforts, and to

the will to use military force, if needed." The writers argue that in the coming decade, the United States will often find itself dealing with the Soviet Union from a position of overall military inferiority. This will force America to struggle primarily by "nonmilitary means" in order to keep the Communist world "off balance, preferably quarrelling internally. Lacking force, deception, coups d'état, upsetting the enemy's internal councils, and proxy warfare become less options than necessity." Moreover, a small investment of resources and political capital in covert activities "can pay big dividends when such investment is part of a coherent, success-oriented plan pursued not only by the CIA, but by the government as a whole." The writers explain how covert actions could have been used during the Polish crisis in 1980-81 by using "black" propaganda and double-agent operations, withdrawing assets of the Polish government by public defection. Perhaps the greatest usefulness for covert propaganda may be within the U.S.S.R. itself, on behalf of nationalist and religious causes.

Intelligence and Policy is not an easy book to get through. Except for the importance and excitement of the topic, the reader might sink into the prose, never to be heard from again. Nevertheless, books like this make a contribution, especially with respect to a topic about which Americans feel so ambiguous. This country has never felt at home with the tactics that often are necessary for an effective intelligence operation. How can

we harmonize such behavior with American democracy in a manner that does the least damage to our values? Bureaucratic euphemisms aside, that is the question studies like this must answer.

ANTHONY J. MOHR
Beverly Hills, California

Andrew, Christopher. *Her Majesty's Secret Service: The Making of the British Intelligence Community*. New York: Viking, 1985. 604pp. \$25

Although Christopher Andrew has not posed the question of why tales of British spies are so much more interesting than tales of American ones, he has provided the answer. British espionage is a branch of romantic literature; American espionage is sordid criminology. The illicit sex, the upper-class connections, the exclusive clubs, the devotion to style (British pomposity creates a delicious setting for the fall of the powerful) seem to create fictional heroes out of British spies. We willingly suspend disbelief. Even the sordid fate of the Oxbridge triumvirate, Philby, Burgess, and Maclean, ending their lives in a tasteless Moscow high-rise without access even to Harrod's, does not seem to dull the fascination with which we await each opening and closing of the door at MI 5, or for a clue to the secrets of the black chamber.

Christopher Andrew has the sense of the drama of the personalities behind the door and their importance in the story. He raises and lowers the

curtain with artistic skill and preserves the excitement which a world trained by British thrillers expects of an often tedious profession.

Is it the British style, a probable attribute of the class system which makes their espionage establishment so much more fascinating than our own? First of all, there are the names. As a historian, what color your work acquires if your characters are named with Dickensian flare, if you have, to work with, Biffy Dunderdale, Admiral Sir Reginald Aylmer Ranfurly Plunket-Ernle-Erle-Drax, Blinker Hall and Sinbad Sinclair.

In contrast, who remembers anything colorful about Benedict Arnold or Jerry Whitworth? How can stories of a fat FBI agent's motel-room affair with a used and demoted KGB reporter create fantasies; what considered advice of William Colby's or solemn warning of Admiral Turner's can compare with the mysterious appearances of the omniscient "C"? Add to that our Senators' and Representatives' habit of using our secrets for their own political advantage, and our espionage establishment appears like a tawdry "Downstairs," envious of the British "Upstairs," where sordid behavior is executed with style.

However, in addition to his delight with espionage as fiction, Christopher Andrew has a very serious story to tell. An observer from Oxbridge himself, senior tutor at Corpus Christi, Cambridge, he has documented what most professional political scientists and historians do not like to confront: that many critical decisions, military victories, and

brilliant diplomatic strokes often had as much to do with what was going on behind the black door as with the rational decisions and clear vision of the political actors. For evidence, we do not need to go far. Many of the battles of World War II are now known to have been fought with the code books rather than in the field.

In a very entertaining book, there is a profound message: that political science and military strategy can no longer be properly understood without a knowledge of eavesdropping. (How confidently we spoke of the invulnerability of our submarines while the Walkers were probably telling the Soviets their locations!) Although this truth would appear to be self-evident, much of the book is devoted to the terrible consequences of not paying attention to intelligence information. Stalin's refusal to credit Operation Barbarosa, about which he had ample enough warning to save at least many of the twenty million who—the Soviets claim—died consequently, is one of the more dramatic illustrations of the failure to listen to the spies. There are others. General Haig, who stubbornly presented the flower of British youth as bright targets for German machine guns at the hopeless Battle of the Somme, did not credit contradictory information. Norway and Denmark were easily occupied because Whitehall chose to disregard serious reports of those impending operations. And so the story goes.

Mr. Andrew is not the first to document a world whose leaders often have eyes but do not see and

ears but do not hear. His evidence, more relevant perhaps because more recent, does not differ very much from the lessons we should have learned from the Greeks. The blind Tiresias's prediction of the fall of kings and the prescient Cassandra's vision of the Fall of Troy foretold the pattern: the information is there but its significance is not perceived. It is the old problem of form and content: the detail, isolated because of misconceptions, does not fit into the accepted context or form. Our view of reality holds us in thrall.

This factor—the propensity of statesmen not to use the information which they receive—gives *Her Majesty's Secret Service* some of its drama. Knowing of the terrible events to come, we read with alarm Andrew's accounts of the mundane problems of finding an office, getting extra pounds, putting down rival organizations, sorting the mail, finding someone to read it, and then waiting for the knock on the door.

The reason that intelligence works so well as fiction is that it is the cutting edge of conventional reality. Intelligence deals with the perception of changes. It is a constant attack on conventional wisdom and usually an affront to the establishment. It demands decisions, sometimes of terrifying proportions—would you have wanted the watch on the night of December 7th?—from leaders usually struggling to maintain the *status quo*. That quality sets us up for the Greek tragedy that is history with its many blind Oedipuses slouching toward the oracle at Delphi. In

recounting the story, Christopher Andrew does not evoke the thundering fates of Sophocles nor the slapstick of Aristophanes, but there is a hint of both there, enough to amuse and appall.

ROBERT BATHURST
Carmel Valley, California

Foot, M.R.D. SOE: *The Special Operations Executive 1940-1946*. Frederick, Md.: University Publications of America, Inc., 1986. 280pp. \$24

By July 1940, Hitler's threatened Nazi domination of the European continent was becoming a horrifying reality. It was evident to the British that drastic measures would be needed to stop Hitler and one measure given serious consideration was unconventional warfare. In 1940 the British Special Operations Executive (SOE) was created for the express purpose of supporting and stimulating resistance in occupied countries. SOE's creators knew their actions could not have a decisive influence on the war's outcome, but their activities would surely play a valuable role through the diversion of Nazi resources.

Foot ably describes the creation and operation of one of several allied clandestine organizations. While the author did not serve in the SOE, his World War II experiences with the SAS brought him in contact with some of SOE's operations and agents. That experience has given him a perspective to write a factual and historical account of a small and

dedicated secret service organization that did its part in World War II in the face of overwhelming odds. Foot describes the circumstances, political turbulence, and decisions that went into the creation of the super secret SOE and guided its operations throughout its existence. He explores in detail the ways agents were recruited, trained, equipped, and controlled. The people that made up the SOE were ordinary people of uncommon valor from all walks of military and civilian life.

An agent had to live by his wits in an environment where even the slightest unconscious mistake could result in discovery and capture. Capture often meant imprisonment, torture, and death. Some agents "sold out" to the enemy, some held out valiantly until their deaths, and a few were able to maintain such a convincing cover story that they were released without it being discovered who they really were. Some operations succeeded, some failed, and some simply survived bureaucratic bungling. SOE experienced the same turmoils, rivalries, and suspicions that unconventional organizations cloaked in secrecy experience today.

The author strives to give the reader an appreciation of the dangers, frustrations, and triumphs experienced by this small group of brave volunteers. He also attempts to give broad insight into the creation and functioning of this fascinating organization that, in a way, is a forefather of today's covert intelligence agencies.

DAVID C. RESING
Commander, U.S. Navy

Deavours, Cipher and Kruh, Louis. *Machine Cryptography and Modern Cryptanalysis*. Dedham, Mass.: Artech Hse., Inc., 1985. 256pp. \$56

Communications intelligence and code breaking have become such standard features of World War II historical analysis that the contemporary reader may be forgiven for assuming that this body of information was generally known shortly after the war's conclusion. In fact, the first allusion to the penetration of the German Enigma system appeared in the 1968 book, *The Philby Conspiracy*, and the full magnitude of this accomplishment did not become apparent until F. W. Winterbotham's book, *The Ultra Secret* was published in 1974. A number of books have been published since that time dealing with the military, political, and organizational aspects and the implications of these revelations.

The breaking of machine cyphers is first and foremost a scientific and intellectual achievement of the highest magnitude. In this book the authors have provided the technical reading public with a singular service; namely, a guided tour through one of the last great intellectual achievements executed by a single human mind or through a small team effort. Messrs. Deavours and Kruh have reconstructed and presented a highly readable form, the procedures which decoded the five principal mechanical and electromechanical code machine families. These procedures are presented in a step-by-step manner so that the interested reader can, with patience and

diligence, solve these machine cyphers himself. At each step, the mathematical justification is presented. In many cases, the authors have consulted primary sources in the development of their solutions. Such sources are technical papers of the actual participants and where possible, the actual principals have been interviewed.

Machine Cryptography and Modern Cryptanalysis is clearly a book for a special audience of scientists, engineers, applied mathematicians and of course, "cypher fanatics." While a knowledge of group theory and statistics is extremely helpful, the general reader can very profitably read this work, given concentration and patience.

For the general reader and the specialist this work provides a number of valuable insights:

- Simultaneous invention of methods, procedures and even hardware is a common occurrence even in a secret environment;
- Superiority in applied mathematics and science and at least a local environment of free expression and technical honesty are the enabling conditions for great technical achievement in general and cryptological breakthroughs in particular. The survival of one's nation can turn on the result;
- Secrecy is a necessary environment which must be creatively managed if interactions between secret developments are to be fully integrated, e.g., cryptanalysis and cypher machine development; and
- As activities grow and require industrial style organization, pro-

grams become managed by people who often do not have the depth of understanding of the technical issues which govern their programs. The bureaucratic imperative becomes operative, often with tragic results. The failure of the German and Japanese cypher systems can be laid fundamentally to such causes.

The specialist reader will find certain editorial mistakes in this book somewhat disturbing. This reviewer noticed several. In retrospect however, corrupted text is a constant in cryptanalysis. To Messrs. Deavours and Kruh, "very nicely done."

JAMES S. O'BRASKEY
Naval War College

Krepinevich, Andrew F. *The Army and Vietnam*. Baltimore: The Johns Hopkins University Press, 1986. 318pp. \$26.50

Andrew Krepinevich is an Army major currently assigned to the Office of the Secretary of Defense. This book is an outgrowth of his doctoral dissertation and, as its title states, stresses the Army's role in the Second Indochina War.

The central question the author seeks to answer is how an army of the "most powerful nation in the world" failed to defeat the smaller force of a lightly armed opposition. At the outset he hypothesizes his answer: "The United States Army was neither trained nor organized to fight effectively in an insurgency conflict environment."

Krepinevich's methodology is to examine the question through documentation and interviews in three discrete time periods: the advisory period, 1954-65; the war years, 1965-68; and the withdrawal years, 1968-73. He then sets forth his argument and conclusions. The bulk of the book concerns the first two time periods; the withdrawal phase is seemingly appended.

From the outset it is clear that the book is primarily an analysis of Army doctrinal matters blended into a well-researched historical context. To the author it is clear that the struggle should have been a counter-insurgency effort rather than the conventional type of war the Army actually fought. For example, he concludes that in the advisory period the Army failed to structure its forces for counterinsurgency operations and that the major innovation it developed at that time, airmobility, had in reality been created for a NATO scenario. When such forces were employed in Vietnam it was as an attempt at a technological "fix."

The section on the war years describes the period beginning with decisions to commit ground combat forces in that fateful spring of 1965 until the bubble broke at Tet 1968. This is a particularly clear section which cuts through bureaucratic underbrush with precision and good insight. Two illustrations are the debate concerning the introduction of ground forces that Ambassador Maxwell Taylor eventually lost to his bureaucratic opponents in MACV, the Pentagon, and the White House; and the preoccupation

of MACV with "crossover" points and statistics, with which even Robert McNamara had had enough by the fall of 1966.

The author's observations concerning the attrition strategy of this period are damning. Two specifics are the excessive use of firepower and careerism in connection with the body count, which became the key for measuring progress in this war of attrition. One weakness of the book in this section is the relatively brief treatment given to pacification which was, after all, what the war was supposed to be about.

The withdrawal years are covered in a chapter resembling a long footnote. The author does make the point that there was no change in strategy except that occasioned by the troop removal itself.

The most provocative chapter is the concluding one which brings Krepinevich into the doctrinal dialogue with those who believe a true conventional strategy would have been successful, for example, a push by American, Vietnamese, and Korean forces across Laos to the Thai border. Harry Summers is currently one of the best known exponents of this hypothesis.

Some telling points the author makes in his conclusions: because of its doctrinal fix, the Army expended human and material resources in a profligate manner without results; most of the learning of what went wrong occurred at the junior officer level with those more senior playing the game to enhance their careers; subsequently the Army expunged the

Vietnam experience from its corporate consciousness and even now is unconvinced that low-intensity warfare represents the most likely area of future conflict.

This is an important book. It is well researched and clearly written, though it lapses into jargon at times. The author does set the stage for a doctrinal debate with the Army's conventional school by setting forth his conclusions in a provocative but plausible manner.

One caution: the book is, as the title indicates, about the Army. While the political/social milieu in which the war took place is alluded to, nowhere is it evident that in the final analysis this, and not doctrine, controlled the manner in which the war was fought. This is intentional on the author's part, but is an inhibiting factor for the general reader, considering the political nature of the war. Nevertheless, I strongly recommend this important book to both students of the war and to those interested or involved in current Army doctrinal debates. The outcome of these debates is vital not only to the Army's future but, more importantly, to the Nation's.

DOUGLAS KENNARD
Lexington, Virginia

Stanton, Shelby L. *Green Berets at War: U.S. Army Special Forces in Southeast Asia 1956-1975*. Novato, Calif.: Presidio Press, 1985. 360pp.
\$18.95

This book, about the exploits and accomplishments of Special Forces, is sure to raise the "hackles" of many in military and civilian circles. Shelby L. Stanton has provided a straightforward description of Special Forces organization and combat performance in Southeast Asia. He describes the individual exploits of Special Forces personnel in detail, bringing to the narrative a personal dimension and ground combat-level reality seen only in the better accounts of the wars in Southeast Asia. While his insights may offer little that is new to those who understand and are familiar with Special Forces, they are useful to those in the military mainstream.

Special Forces became involved in Southeast Asia long before U.S. policy made the area a major national security concern. As early as 1956, the 14th Special Forces Operational Detachment was activated for the purpose of "leading Asian resistance forces against Sino-Soviet forces expected to overrun the rim of Asia." Other Special Forces detachments were activated for operations in the Pacific. In 1959 Special Forces were operating in Laos, carrying civilian identity cards. In 1961 the U.S. Military Assistance Group in Laos was activated and the civilian cover discarded.

From such beginnings the author traces the development and expansion of Special Forces operations throughout Southeast Asia, with the major part of the book devoted to operations in South Vietnam. Using primarily operational after-action re-

ports, Stanton describes in detail virtually every Special Forces operation during the course of the Vietnam War. He provides a word picture of Special Forces personnel performing feats of heroism and day-to-day operations involved in everything from border surveillance, special reconnaissance, MACV-SOG operations, to the Son Tay raid and expendable infantry.

Stanton describes the effectiveness of Special Forces in establishing, maintaining, and operating the Civilian Irregular Defense Group (CIDG) and a variety of camps. Some of the most dramatic narrative is on combat in defense of these camps.

The chapter on "The Green Beret Navy" is particularly interesting. Special Forces units were instrumental in developing doctrine for water-borne operations in the Mekong Delta south of Saigon. Early in the war in rice paddies, bogs, marshes and interconnecting rivers, the Special Forces fought particularly difficult battles with the Vietcong. Only later did good doctrine and effectively designed watercraft result in successful operations.

Stanton notes that "Many senior Army commanders were adamantly opposed to Special Forces, primarily because they did not understand its purposes and functions." He takes General Creighton Abrams to task for his opposition to Special Forces. The distrust of Special Forces was apparently common throughout MACV circles. Interestingly enough, similar attitudes appear to characterize the contemporary U.S. military.

Stanton gives us a descriptive and detailed historical account of a period in U.S. history that is being revised, reinterpreted, distorted, and maligned by many. To be sure, there are incidents and policy decisions associated with Southeast Asia and the U.S. role that hardly bring glory and honor to the U.S. military, among others. But there is still much to commend in the efforts and actions of the military and civilians in trying to carry out policies and strategies of the U.S. Government. Stanton attempts to balance the record and he does so without apologies. His book describes the Special Forces efforts in Southeast Asia, "warts and all."

With all of its strengths, the book is not without shortcomings. It would have been useful had the author placed the role of the Special Forces in Southeast Asia in the context of the broader international security environment. It might have been revealing, for example, to examine in more detail the problems of the conventional military during the 1960s and 1970s and the problems the regular combat units had in Vietnam in comparison to the Special Forces. Perhaps a more detailed comparison would blunt some of the criticism of those who saw little good in the Vietnam involvement and little good in the military.

In the final analysis, what this book does is confirm the view that the Special Forces is indeed a special kind of unit with special kinds of people who have been the spearhead in some of the most dangerous and "lonely" missions that the United

States has undertaken. It also points out that the misuse of Special Forces by those who have little concept of unconventional conflicts is the road to disaster, not only for the Special Forces, but for the U.S. military.

Some of the most poignant parts of the book are in the appendices, "Special Forces Personnel Missing in Action" and "Special Forces Medal of Honor Recipients." One need not have worn a green beret to understand the meaning of such a sentence as ". . . was wounded in the left leg, captured by North Vietnamese troops, and never seen again," or the sentence, "Enabled his surrounded company to escape by charging several Viet Cong positions before he was killed by a rocket . . . in Long Khanh Province, Vietnam."

This book will find its place on the shelves of those in Special Forces and all those who understand unconventional conflicts and Special Forces. More important, it deserves a place on the shelves of those concerned professionals who know little about Special Forces and unconventional conflicts. For those people it can shed light on the realities of such warfare and the fighting men who carry it out.

SAM C. SARKESIAN
Loyola University of Chicago

Hallin, Daniel C. *The "Uncensored War": The Media and Vietnam*. New York: Oxford University Press, 1986. 285pp. \$22.50

Professor Hallin has written a painstaking and provocative study of the U.S. media in Vietnam in which he focuses on what he regards as the myth that print and television reporters opposed Washington's policy from the beginning and, thus, helped lose the war.

It took Hallin, who teaches political science and communications at the University of California at San Diego, 10 years to turn out *The "Uncensored War": The Media and Vietnam*. Even then, his extensive research which included content analyses of 779 newscasts of the three major networks from August 1965 to 1973 and numerous interviews with reporters who were there, was limited to only one newspaper—the *New York Times* whose files he examined from 1960 to mid-1965. One may question whether one newspaper's reportage, even one as important as the *Times*, is enough upon which to make general conclusions about the print media.

Hallin writes clearly and with a minimum of professional jargon. Ample quotes, public opinion poll data and statistical graphs illustrate his points. He strives for balance. Yet, when all is said and done, he fails to come to any hard and fast conclusion as to the extent of the impact the media had on Washington's decision to wind down the war and quit the field of battle. He does conclude, with many others, that the majority of the media, not unlike the American people and Congress, supported the war effort in the early days and perhaps up to the time of the Viet-

cong Tet offensive in February 1968. The media would resent Hallin's suggestion that it was a willing tool of the U.S. Government at the outset. As he noted, the *Times* carried many stories highly negative to American policy on Vietnam as far back as 1963.

Page one stories of raids on Buddhist temples by Saigon troops and the self-immolation by bonzes were regular fare for *Times'* readers. This so upset President Kennedy that he later told the American people that major personnel changes in the government of President Ngo Dinh Diem would have to be made. Given this green light, U.S. officials encouraged South Vietnamese Army leaders to stage a coup. In the course of events, Diem, an elected official and, like Kennedy, a Roman Catholic, was assassinated. Coincidental or providential, three weeks later to the day, Kennedy was assassinated.

While the author downplays the roles of television and the *Times* in turning American public opinion against the war, he acknowledges that he cannot be certain as to what the impact of negative reports really was. He notes that Tet, which was a severe military defeat for the Vietcong and its cadres in the South, marked the beginning of the first sustained period in which television screens showed the war as the bloody and brutal affair it was. Tet also marked a great increase in editorialized reports and commentary, much of which fed the growing war-weariness of the American people.

Hallin discusses, albeit only in the briefest way, the idea that if a politi-

cian were to believe that television shapes public opinion, and were to respond to the news as an indication of public sentiment, then the news might shape the course of politics regardless of the actual impact on the public. In this connection, he recalls Walter Cronkite's commentary while on a trip to Vietnam during the Tet period in 1968. The CBS TV anchorman concluded that the war had become "a bloody stalemate." When President Lyndon B. Johnson heard that, he figuratively threw in the towel. "It's all over," he is said to have told White House aides.

Could official censorship have changed things? In any future war, Washington may want to ponder this question given the lesson of Vietnam and, more importantly, because some American reporters now regard themselves as citizens of the world whose search for truth, which is to be revealed as soon as it is discovered, takes precedence over victory, either military or political. While Hallin concedes that public opinion eventually became a powerful constraint on U.S. policy and was, indeed, decisive, as Ho Chi Minh had predicted, he has a reservation here.

It is not clear, he argues, that the result would have been any different if there had been censorship—fewer negative stories by print reporters and the total exclusion of TV. But if it were not certain the results would have been different, it is equally uncertain they would have been the same. The author believes the United States could not have defeated the Vietnamese revolution at any reason-

able cost and had little real national interest there.

It might be of some interest to note that after citing help with his book from Jack Citrin and Todd Gitlin, Hanna Pitkin and Samuel Popkin, Hallin reports that he greatly benefited from conversations with Daniel Ellsberg.

L. EDGAR PRINA
Washington, D.C.

Broyles, William, Jr. *Brothers in Arms: A Journey from War to Peace*. New York: Knopf, 1986. 284pp. \$17.95

Soldiers always want to know how it is on the other side of the hill. The staff is interested in the whys and hows of strategy and tactics; the frontliner really wants confirmation of what he suspects—the other guy isn't having an afternoon at the beach, either. Mr. Broyles belongs to the second group, although strategy and tactics are not slighted in his account. He was an ambivalent volunteer in Vietnam (without putting words in his mouth one can hear him saying that the U.S. role may have been morally defensible but it was an operational mess) who served as a Marine infantry first lieutenant around Da Nang in 1969-70. He went back to Vietnam in 1984 to get a retrospective view of the other side, as well as to appease some private furies. On the surface he was no postwar misfit; he resigned as editor of *Newsweek* to try this trip.

As a report on the reverse slope, Mr. Broyles' book is fascinating. His

respect for the Vietnamese soldier is immense; in this he echoes many U.S. fighting men, if not their air-conditioned staff and Pentagon colleagues. Vietnamese steadfastness, cleverness and ingenuity in tactics, hardiness and moral strength are all reported and praised. Mr. Broyles concludes that the last came from nationalism, a force generally underestimated by the United States in Third World enemies and ignored in Third World friends and allies. That the Vietnamese in both the South and North were to find their patriotism and sacrifices misused by their Marxist-Leninist leaders does not denigrate the soldiers' motives. A Gallup Poll among Continental Army veterans faced with propertied Federalist rulers might have been a shocker in 1789. Thus read, Mr. Broyles may be saying (without condescension) no more than Kipling did about the Fuzzy-Wuzzy: "You're a poor benighted heathen, but a first-rate fighting man."

When we read beyond this generous view we come to a problem. Mr. Broyles was hardly free of Vietnamese official control—his itinerary, interpreters and, one suspects, interviewees were largely picked for him. Not that he was naive. He reports the mind-dulling dogmatism of Communist officials, the dreariness of life in the North, the discontent in the South; and he does not overlook Vietnam's post-1975 record of the boat people, Kampuchea, etc. But there remains a wish that a reporter of Mr. Broyles' talent might have been able to cast his net more widely.

On the POW-MIA problem, this lack of scope was equally frustrating to author and reader. The book reports that members of the Swedish mission, who have the most freedom of action among foreigners in Vietnam (why?), report seeing Americans on work gangs. But the Vietnamese official in charge of North American affairs repeated the usual line: "They have all been released. There may be a handful who chose to stay here, but no one is being held against their will."

Looking at the U.S. entry into the war from the view today in Vietnam, Mr. Broyles is succinct, if not altogether precisely accurate: "And the fear that started it all, the fear of Chinese expansion. Well, we are now China's most important ally, while China's most bitter enemy, and the staunchest foe of its expansion into Southeast Asia, is of course Vietnam."

One would like some of the academics, journalists, policymakers, etc., who enthused over the Vietnam intervention, to make a journey such as Mr. Broyles did. Everyone can make a list of prospective tourists: this reviewer's would certainly include Joseph Alsop, the Bundy Brothers, Samuel Huntington and Walt Rostow. If they can't go, maybe they could read *Brothers in Arms*.

J.K. HOLLOWAY
Naval War College

Modern Historical Experience. New York: Pantheon Books, 1985.
628pp. \$25

"The Vietnam War was the most challenging military experience in U.S. history, a synthesis of politics, technology, the residues of past wars, convoluted logic, and symbolism—all merged with enormous firepower and a surrealistic mixture of illusion and clarity on the part of American leaders." With this statement, Gabriel Kolko begins chapter 14 in his latest work.

The potential reader is cautioned not to be fooled by the title—this is only an account of the war in Vietnam to the extent that a minutely detailed analysis, for example, of social conditions in Weimar, Germany in the 1920s tells the story of World War II. More than anything, this book chronicles the Communist Party of Vietnam to a degree perhaps unequalled in any other work and is, for this reason alone, probably worthwhile reading for those who may be interested in what is, according to the Marxist framework within which the author conducts his analysis, the "modern historical experience."

A good deal of the book is devoted to examining the organization which Ho Chi Minh was able to develop and nurture, with particular focus on postwar retreat by the colonial powers which was the result of, "above all, the relationship of the united [opposition] front to the class struggle over land." If the reader can sift through the author's obvious sympathy—almost to the point of fawning—for Ho and the movement

in general, it is difficult not to be impressed by the case he makes that there never really was any question to those in the North that the U.S.-backed South would never prevail. Indeed, the author rather convincingly suggests that there may even have been elements in the United States, particularly in the Central Intelligence Agency, which recognized this as well.

While the book is generally a credible piece of scholarship, the author too frequently permits his views to wear through. For example, he has fallen for the old standby reason for U.S. involvement in Vietnam in the first place: rubber. Very authoritatively but, alas, without reference, he tells us that "Raw materials, though less publicly cited than earlier, were still prominent in the decision makers' vision" as late as 1961.

Despite the coloring this is an important book. The portion in which the author deals with the political economy of the war and its effect on Western financial relationships, is the best such approach—perhaps the only—in the literature on Vietnam. In addition, Mr. Kolko is surprisingly critical of the Tet Offensive, resulting as it did in the "NLF . . . [loss of] most of its already fragile urban infrastructure"; he summarizes the issue as one which was costly but nevertheless crucial as a consciousness-raising evolution for both the U.S. planners and the "educated urban elements" in the South.

One can choose to accept or not Mr. Kolko's fundamental Marxist

assumptions and his subsequent glorification of the Communist Party of Vietnam; nevertheless, one cannot reject the nature of the beast as he describes it. Most importantly, though, Gabriel Kolko has given us a primer on how not to wage war against an enemy with whom we are essentially ill-equipped to engage. In so doing, he has, unquestionably, without meaning to, validated the underlying principle of what has become known as "the Reagan doctrine." The nature of warfare has changed and our commitment to support noncommunist insurgencies with unconventional means testifies to our recognition of this most urgent "lesson of Vietnam." Kolko suggests, though, that "the modern historical experience" will prove us unequal to the task.

LAWRENCE T. DI RITA
Lieutenant, U.S. Navy

Nuechterlein, Donald E. *America Overcommitted: United States National Interests in the 1980's*. Lexington, Kentucky: The University of Kentucky Press, 1985. 238pp. \$23

Sometimes a title does a disservice to a book. Such is the case with Donald Nuechterlein's latest study of the underlying structural bases of American foreign policy, *America Overcommitted*. One might expect handwringing from a *quid nunc* pundit. Those who have followed Nuechterlein's thoughtful development of a logical structure for identification of the nature and degree of national

interest know better. This book captures the essence of his earlier works and applies the same logical framework to an analysis of U.S. interests and policies on a global scale.

Nuechterlein baits the hook for the reader in the first chapter by introducing the controversy among scholars as to the utility of the concept of national interest in foreign policy formulation and analysis. Because the author provides explicit paths and explanations of the data, historical background, and assumptions that he used in identifying the U.S. national interests—country by country—around the world, the reader can make his own judgement as to utility.

The author's national interest matrix arrays four attributes: defense of homeland, economic well-being, favorable world order, and promotion of values (example: human rights) against four measures of intensity of interest: survival, vital, major, and peripheral. The author develops the criteria for distinguishing between vital and major interests—the others are self-evident.

Students of conflict and persuasion will relish the eleven political/economic and nine military instruments of foreign and national security policy that range from establishing or breaking diplomatic relations to the "limited" use of nuclear weapons—quite a gamut! Nuechterlein's discussion of these instruments is not particularly deep and might not satisfy specialists, but it is adequate to fix one's ideas as to how to apply the national interest matrix.

The author looks at national interest primarily through a political/power lens. He views smaller countries or distant ones like Japan, Korea, Brazil, and South Africa as being in the vital-major range of interest. He does not see them as essential to U.S. national survival. He does not explicitly make linkage or identify results of changes in regional alignments vis-à-vis the United States or its allies that potentially are catastrophic to the United States.

The reader is invited to do what the reviewer did—use the national interest matrix not from the political/power viewpoint of the United States but from the economic (wars-fighting) interdependence of the United States, its allies, and most of the neutral and nonaligned nations. Many of the countries of lesser interest in the power/political view become vital, approaching survival, interests as the integrity of the war industrial base is threatened through destruction or denial of strategic materials on critical electronic sub-assemblies. Any decline or cut in the ability of the United States to sustain conventional forces leaves nuclear options of uncertain utility as the only "trump card."

The arsenal of the free world in the final few years of the twentieth century has a vastly different character than it had during World War II. Vital, "high-tech" components and labor-intensive as well as capital-intensive manufacturing processes have moved offshore. It is as if the arsenals of the Confederacy during the American Civil War were located

in Moline, Ill., Gettysburg, Pa., and Bermuda rather than Birmingham, Atlanta, and Richmond. Using Nuechterlein's methodology, what then becomes of survival interest for the Confederacy?

This book provides not a practical, but a conceptual viewpoint. The typical examples from the 1980-84 time period (the Iranian Hostage Crisis, Marines in Beirut, etc.) do not detract from the lasting value of the methodology. Those of us who are involved intellectually in the debate about future force composition and structure can benefit from Nuechterlein's work and from his ability to involve us in his argument.

ALBERT M. BOTTOMS
Alexandria, Virginia

Hart, Gary and Lind, William S.
America Can Win: The Case for Military Reform. Bethesda, Md.: Adler & Adler, 1986. 301pp. \$16.95

In this assessment, Senator Gary Hart (D-Colo.) and his aide, William S. Lind, examine the very core of the U.S. military structure. The diversity of issues ranges from warfare types, Joint Chiefs of Staff organization, and military procurement to subjects as mundane as the weight of the individual rifleman's combat load.

America Can Win is a manifesto of the military reform movement. Reflecting the express aims of this reform movement, the book's two most ambitious and broad goals are: moving the focus of the defense

debate from the budget to combat effectiveness, and the adoption of maneuver warfare.

The authors propose that the issue of military budgeting and spending not be focused upon how much money is spent but upon whether the money being spent provides America with an effective military with war-winning capabilities. They argue that the measuring stick of the Armed Forces ought to be combat effectiveness, not McNamaraesque cost efficiency. As the authors perceptively point out, "Most congressmen justify their focus on the defense budget by saying that they are trying to prevent waste. What they miss is that, if the armed forces are not effective in combat, all defense spending is waste."

The second broad goal is the adoption of maneuver warfare by all branches as expressed doctrine. *America Can Win* is not a treatise on maneuver warfare nor is it intended to be. Nevertheless, since the acceptance of maneuver warfare is a cornerstone to the proposed reform, the authors should have sent out their reasons for its superiority. Instead the book presents only straw anecdotes, and the reader is expected to accept on faith that the doctrine of maneuver warfare is superior. This flaw would have been ameliorated somewhat had a bibliography been included. As is, the average reader's understanding will be limited to the level of cocktail party discussions only.

In their analysis of the current military structure and its ills, the authors are bitingly direct and merci-

less. Virtually all groups associated with the making of policy involving the Armed Forces are criticized. Such criticism is a natural consequence of the authors' desire to shift and reform the core perceptions within the military structure. Yet, it could cause the policymakers to place bruised egos before professionalism and ignore the valid points made by the book. While the book pulls no punches regarding the policymakers, junior officers and NCOs do not receive such honest treatment as the authors take great pains to gain their favor.

Two major shortcomings of the book are its exclusions of strategy and nuclear war. The authors explicitly state that the book deals with neither strategy nor nuclear war; however, in this age of both tactical and strategic weapons wherein the United States could foreseeably be involved in both superpower and Third World conflicts, the validity of these exclusions is questionable.

America Can Win identifies the issues facing America's military. The great merit of the book is not in its recommendations but its questions that call into account many basic beliefs and convictions regarding the military structure. It is for these hard questions that the book should be read by everyone concerned with the direction of the Armed Forces. The holders of those questioned beliefs must recall the wisdom of Nietzsche: "A very popular error: having the courage of one's convictions; rather it is a matter of having the courage for an attack on one's convictions." In its attacks on America's military

structure *America Can Win* provides a foundation for debate.

GARY J. DEAN
First Lieutenant
U.S. Marine Corps Reserve

Smith, Peter C. *Hold the Narrow Sea. Naval Warfare in the English Channel, 1939-1945*. Ashborne, Derbyshire, England: Mooreland Publishing Co. Ltd.; dist., Annapolis, Md.: Naval Institute Press, 1984. 255pp. \$14.95

Ever since England rose to prominence as a seapower, the English Channel and its approaches have been the scene of numerous naval actions. Those waters have always been crucial to England's retention of its position as a maritime nation. Often, for its very survival, England has had to ensure control of "narrow seas" surrounding its shores.

There was perhaps no greater threat to England's survival than the period between the fall of France in June 1940 and the German invasion of Russia in June 1941, when it stood alone facing what appeared to be the invincible might of Nazi Germany. In those critical days both the R.A.F. and the Royal Navy fought valiantly against overwhelming odds to save the country from a widely expected and planned invasion.

It was then, that the English Channel became a scene of numerous clashes between British and German light forces. The term "narrow seas" in fact came into wide use then to refer to the actions of light forces in

those waters washing the shores of west Europe and, in particular, the waters of the English Channel and its approaches. The struggle for mastery of the narrow seas did not end until the Allied liberation of France and the Benelux countries early in 1945. The naval actions in the English Channel were numerous, bloody, and fought with great determination on both sides. Both sides in the conflict suffered great losses in ships and men. But it was the British who in the end prevailed.

This book was written by a well known British naval author; however, the title is misleading because the author describes only the actions of British destroyers, and not light forces and minesweepers. The latter forces, and not the destroyers, bore the brunt of the burden in holding the narrow seas for the Allies. The author has provided a detailed account of everyday actions fought by the destroyers in escorting convoys, and transporting troops and materiel. These actions occurred frequently in atrocious weather and in waters endangered by many shoals, strong currents, and tides.

The British ships faced not only inclement weather and confined waters but had to ward off attacks by the German aircraft, E-Boats, and larger ships, and deal with the constant danger from mines. There was almost no respite and little glory in these actions by the destroyers in the English Channel; yet, they continued to fight despite the odds. The destroyers and their crews earned the respect of their enemies and provided

inestimable service for the Allied cause.

The book has a number of shortcomings which limit its use for any serious reader of naval warfare. There is an almost endless description of minute details concerning the particular courses, bearings, speeds, radio frequencies used, and number of rounds fired. There is little, if any, analysis of particular actions and no serious attempt to deal with and gain useful knowledge from operational mistakes. There are too many quotations from various diaries that add no analytical focus, but only serve to dull the reader with extraneous details. There is no attempt to describe the organization of the German or British naval forces used in the English Channel either at the beginning of their conflict or at any time during the ensuing years of the conflict. In discussing the evacuation from Dunkirk in June 1940, the author provides data on the number of troops transported but at no time are Allied ship and personnel losses given. He uses the German abbreviations for air units, with no English translations. The book is also badly organized, with too many subsections and no footnotes.

Despite these shortcomings and more, the book is useful because it describes an important and often forgotten aspect of naval war: the actions in "narrow seas" or restricted waters.

MILAN VEGO
Alexandria, Virginia

Middlebrook, Martin. *Convoy*. New York: Quill, William Morrow and Co., 1976. 378pp. \$9.95

Convoy by Martin Middlebrook is a highly professional, accurate, thoroughly researched reconstruction of what was first called, "the greatest convoy battle of all time"—it is a book that contemporary naval strategists and planners should "revisit." After three years of war, with the Allies winning on every front, but with the survival of Britain hanging on the tenuous Atlantic sea line, adequate protection was still not provided to the convoys. Too few escort ships with ineffective capabilities struggled against heavy weather and overwhelming numbers of German U-boats. Commanders were faced with rescue of survivors versus prosecution of an unseen enemy. The arrival of patrol aircraft was a most dramatic influence on the battle and the entire campaign. The author takes us through a careful description of World War II events leading up to this major battle. He explores with us the backgrounds of the men in the merchant ships, the escort vessels, the land-based command centers, and the flight crews. He looks into the backgrounds of the German U-boat crews and staffs ashore. The book does an excellent job of creating for us a clear picture of the four participants of a convoy battle: the ships, the crews, the commanders, and the intelligence systems.

In early 1943 the German Commander in Chief, U-boats, Gross Admiral Karl Donitz, with a small staff operating in a Berlin hotel,

supplied with a continuous flow of decoded British signals, sent 42 of his submarines against two convoys consisting of 141 ships. The convoys, protected by a handful of escort vessels, moved slowly into the "air gap" of the North Atlantic to face the greatest concentration of U-boats that had ever threatened the convoy routes.

In this air gap, which was an area not covered by land-based antisubmarine aircraft patrols, Donitz planned for his U-boats to attack the convoys. The description of the battle is as exciting as a good novel. Middlebrook takes us from the bridge of a corvette, to the deck of a sinking merchant ship, to the conning tower of a U-boat, with eyewitness descriptions of the action. We share in the panic, frustration and discipline, the success and failure, the right and wrong decisions of officers on both sides, of sailors, of observers, and of ashore commanders and staffs.

Convoy is far more than informative and exciting reading. It is essential reading for Navy people involved in planning, policy, and decisions related to strategic sealift, control of shipping and protection of shipping. Middlebrook asks some basic questions after he describes the battle. Why was there an air gap and did it have to exist? Why were there insufficient numbers of ineffective escort vessels and why were escort force commanders ill-trained? Why did the enemy know of almost every convoy? These are questions of interest to World War II historians, but most importantly they represent

questions which could be as relevant today and in the future as they were in 1943.

In a future conflict—if the NATO forces are not to relearn the lessons of two World Wars—we must pay attention to what Martin Middlebrook is telling us. Systems for protecting merchant shipping must be developed. Resources must be provided. Procedures for this protection must be documented, taught, and practiced at sea. Secure communications with properly staffed and equipped command centers must be provided. The tactics, rescue procedures, salvage methods, control and routing of merchant ships must be practiced in peacetime.

There are many lessons for us in *Convoy*. One concerns the CHOP (change in operational control) line encountered by Atlantic convoys as control changed between British and U.S. staffs. In 1943 there was one such change encountered by North Atlantic convoys. This caused considerable problems in control and protection of the convoys as policy and resources varied on each side of the CHOP line. Today, NATO plans provide for five such CHOP lines, with each NATO commander responsible for a segment of the convoys' transits. Having experienced the difficulty created by one such change we now plan on five.

Convoy is an excellent book, a valuable addition to the library of lessons hard learned in that dirty unglamorous part of war which cannot be overlooked again. Written ten years ago about a battle fought 45

years ago, it is more important today than ever.

S.D. LANDERSMAN
Captain, U.S. Navy (Ret.)

Dibb, Paul. *The Soviet Union: The Incomplete Superpower*. Champaign, Ill.: University of Illinois Press, 1986. 293pp. \$26.95

Paul Dibb—a senior research fellow at the Strategic and Defence Studies Centre, The Australian National University at Canberra—has not created an innovative or original interpretation of the Soviet Union, but this is hardly likely given the extensive writings presently being poured out which look at every aspect of this country. However, his book is a sound and balanced examination of the strengths and weaknesses of the Soviet economy, especially as it affects the foreign and military activities of the U.S.S.R.

The Soviet Union is particularly useful as a collation of the judgments of Western observers on the reasons for Soviet exploitation of its power—political, economic and military—within the international system. It is Dibb's conviction that the Soviet Union has failed to attract any countries in the Third World to the Soviet model. Politically and economically the U.S.S.R. has not inspired emulators; only its military strength, aid, and weapons have had impact. However, there is a political influence that I believe Dibb and many other scholars have ignored. The Leninist organizational model

for revolutionary seizure of power and for establishing political control has had a number of takers. Ethiopia, Afghanistan, Yemen (and Nicaragua if its leaders have their way) are among those who have been influenced by the Soviet experience in exercising effective political control of their people and are presently exploiting these Leninist techniques.

The initial chapters of this book sketch out the essentials of the exercise of power among nations and the workings of the international system. The importance of the sense of perception as opposed to the reality of power is stressed. In addition, the significance of geography, history, and ideology in shaping Soviet perceptions is argued. This early section serves to explain how the Soviet Union approaches international affairs, deals with other states, and tries to see "what the world looks like from Moscow."

Dibb argues there are severe constraints on Moscow's foreign activities. Certain "internal problems" should tend to hold back the U.S.S.R.: nationality issues, the security of Siberia, and relations with eastern Europe. In a later chapter Dibb examines the Soviet economy, especially as it affects military power. He rejects the contention of some Western scholars that the economy is in a state of crisis, but recognizes there are serious economic difficulties and that some Moscow leaders admit there are such problems. In the recently held 27th Congress of the CPSU, Gorbachev was frank in his comments on the severity of economic difficulties. There are also chapters on

constraints that the international environment imposes on Soviet activities and a useful discussion is provided on the Soviet "strategic environment."

The Soviet Union: The Incomplete Superpower attempts "to give an overview of the likely nature of Soviet power through the mid-1990s . . . the picture is mixed." Dibb concludes that the "long-term Western strategy should . . . concentrate on exploiting the superior economic size and performance of the industrialised democracies, recognising that the struggle with the Soviet Union is at heart political *and* economic, not military." At the same time "prudence calls for a Western response that maintains a military balance sufficient to deter the Soviet Union from the use of military force." It is clear that Dibb offers no new formula for understanding and dealing with Moscow, but it remains important to reiterate hard learned lessons and this is a service he has performed.

HENRY M. SCHREIBER
Naval War College

Jones, David R., ed. *Soviet Armed Forces Review Annual*. Gulf Breeze, Fla.: Academic International Press, 1986. v. 9, 314pp. \$69.50

Since 1977, *Soviet Armed Forces Review Annual* (SAFRA) has published annually, in one comprehensive volume, a statistical overview and analysis of indicators of Soviet military power and a set of accompanying essays dealing with Soviet military affairs. A major theme developed in the ninth

volume of *SAFRA* is that "Russian planners seem increasingly persuaded that a future war will be fought by sophisticated conventional weapons on a high-tech, electronic battlefield."

In an excellent introductory survey of "The Soviet Military Year in Review, 1984-1985," Mr. Jones—the director of Dalhousie University, Halifax, Canada—argues that, as the Soviet Union enters the late 1980s with a new political leadership and a revamped military command, from Moscow's point of view, "the international situation is hardly reassuring." The Reagan administration's insistence on continuing with the development of SDI, postponement of U.S.-U.S.S.R. naval talks on incidents at sea, the Afghan involvement and many other problems will limit severely the extent to which Secretary Gorbachev can restrain future Soviet military investment.

Subsequent essays by a diversified group of authors discuss Soviet strategic rocket, ground and air defense; air and navy forces; as well as the Soviet economy and space program.

SAFRA provides detailed insights into Soviet military capabilities, and thus is a valuable contribution to Western studies on Soviet military affairs. Assorted tables, maps, and figures are interspersed throughout the book. Chapter endnotes and a sixteen-page bibliography of articles and books on Soviet military and strategic issues, 1984-1985, serve as invaluable reference aids.

This book is highly recommended for the specialist and professional military. It will prove to be an asset

to the serious student's collection of books on the Soviet Union.

JAMES B. MOTLEY
McLean, Virginia

Silverstone, Paul H. *Directory of the World's Capital Ships*. New York: Hippocrene Books, 1984. 496pp. \$70

Jordan, John. *An Illustrated Guide to Battleships and Battlecruisers*. New York: ARCO Publishing, Inc., 1984. 151pp. \$9.95

Everyone is publishing something on capital ships these days and these two books, *Capital Ships* and *Battleships and Battlecruisers*, represent two very different approaches—one scholarly, the other popular. The former is written by Paul Silverstone, a name well known to anyone who follows naval affairs. Mr. Silverstone deliberately takes a very broad definition of "capital ship," one which includes not only battleships and battle cruisers but armored cruisers and aircraft carriers. Such is for all the navies of the world since the introduction of steel ships around the middle of the nineteenth century. His information and photographs include many from foreign sources.

As a thorough reference book, *Capital Ships* first presents class details by country in rough chronological order. This section contains the specific physical characteristics of each class with limited notes dealing with the designer and the characteristics of the design. Each ship within each

country is then described primarily by its operational history. Included is an item called "Nomenclature" that explains the meaning of each ship's name. While never seen before, it is most useful. The building yard for each ship is noted, and as expected, most have long since gone. Over 1,000 ships from 20 countries representing 500 classes are covered, also included are 600 photographs, many of them first-timers, particularly for Americans.

This is an excellent, detailed reference which includes such things as the Civil War monitors, and the *Admiral Popov*, Russia's perfectly round ship of the late 1800s. However, more recent Soviet construction gives the author trouble as he reports that the second ship of the latest *Kirov* class is the *Maxsim Gorki*—it happens to be the *Frunz*. Yet, by and large, the statistics presented are accurate.

At the price, this volume will not be a big seller. But for those interested in capital ships of the past 130 years, it is worth the coin, particularly if it can ever be found on sale. Paul Silverstone is to be commended for the substantial effort that went into this single source volume.

Battleships and Battlecruisers, on the other hand, is a flashier presentation of just those two types developed from the HMS *Dreadnought* of 1906. However, the criterion for entry and description is a given ship's existence during World War II. This British-developed publication makes extensive use of artwork prepared at other times for other publications. The *Yamato* plan and profile, for example,

are very familiar. These are assembled here very effectively with an array of good photographs, generally a bit small, although that purported to be of the *Nevada* is actually the heavy cruiser *Minneapolis*.

The basic approach is to describe each class chronologically, starting with the oldest within each country. The "Development" comments are excellent, very readable entries that cover each class' operational and design history. They approach being professional level summaries and Jordan is to be commended. All of this comes in a very compact book which is almost pocket-size and the price is right. The book is one of an extensive series of military guides covering all forms of warfare, each of which is the same compact-size. Despite its "for the masses" approach, *Battleships and Battlecruisers* provides a very worthwhile coverage of the subject.

RICHARD F. CROSS III
Alexandria, Virginia

Spiller, Roger J., et al., eds. *The Dictionary of American Military Biography*. Westport, Conn.: Greenwood Press, 1984. 3v. \$145

The concept of *The Dictionary of American Military Biography (DAMB)* by Professor Roger J. Spiller, Dr. Joseph G. Dawson III, and the late Professor T. Harry Williams is audacious. The *DAMB* took seven years to produce and resulted in three volumes consisting of 1,368 pages containing 376 essays written by 339

scholars. There are also six appendixes on such subjects as the "Chronology of American Military Developments," "American Military Ranks," persons listed by birthplace, and entries by conflict and service. There is also a good index and a list of contributing scholars which reads like a who's who of American military, naval, and Air Force historians, all contributing essays to the *DAMB*. By any standards the *DAMB* was a huge project and even more remarkable is that the editors have maintained a high degree of scholarship throughout the work.

Each essay in the *DAMB* is about 1,500 words in length and follows a standard format. The essays begin with a headnote stating the subject's name, followed by place and date of birth and a brief one or two-line statement outlining his career. For example, Colonel Stephen Wates Kearny is described as a "frontier Army commander, conqueror of New Mexico, governor of California." In another example Audie Murphy is described as a "war hero, actor, author." After the headnote there are several paragraphs which, in as much detail as possible, describe the subject's military and civilian careers. Each essay ends with a statement of one or more paragraphs setting forth the importance of the person in the military history of the United States plus items of importance of a nonmilitary nature. To use Audie Murphy again as an example, roughly half the essay on him is devoted to his pre-World War II life and his military service, while the

other half covers his post-World War II career as an actor and writer. The concluding paragraph attempts to sum up Murphy's importance as a soldier. Each essay is followed by a short list of books which the reader may consult if he wishes to obtain additional information on a particular person in the *DAMB*. Further, there is an extensive system of cross-references between articles in the *DAMB*. For example, in the entry on Admiral Chester Nimitz there are cross-references to Admirals Kimmel, Halsey, and Turner as well as to Generals MacArthur, Smith and Eisenhower.

Throughout the work the editors of the *DAMB* have shown great editorial skill and discipline. At the same time they must have ground their teeth by following the policy of not interfering "with their contributors' views of their subjects . . ." This reviewer's gut reaction when he read a statement such as the one in the essay on Ernest King—that the admiral had an intellect superior to all the other members of the U.S. Joint Chiefs of Staff and that among the British Chiefs of Staff, Air Marshal Sir Charles Portal was the admiral's only intellectual equal—would be to reach for a red pencil. Fortunately the editors did not, and the *DAMB* is a much better work because intellectual conformity was not enforced.

The most difficult task of the editors was to decide who should be included and who should be excluded from the dictionary. If, for example, all the secretaries of war and the

navy plus every general and admiral over a certain rank were included, the *DAMB* would have become a work in size comparable to the 128-volume *War of the Rebellion* and would, thus, be rendered useless as an easy to use reference book. Before making the final decision as to who to include in the *DAMB*, the editors consulted "nearly fifty leading American military historians" and drew up twenty-five lists of entries before the final decision was made. Because the editors decision to include or not to include a person was subjective, in the end nobody would be completely satisfied with the final list of entries. But this in no way should detract from the value of the book.

The *DAMB* is a masterpiece of historical editing and scholarship, and will be the standard work of its type for years to come. The skill of its editors and the scholarship of its contributors cannot be praised too highly—*The Dictionary of American Military Biography* is truly a job well done.

DAVID SYRETT
Queens College

Akaha, Tsuneko. *Japan in Global Ocean Politics*. Honolulu, Hawaii: University of Hawaii Press, 1985. 224pp.
\$19

From the first United Nations Conference on the Law of the Sea (UNCLOS) in 1958, to the signing of the United Nations Convention on the Law of the Sea in 1982, profound changes took place in global attitudes

toward the law of the sea. The most important of these has been the trend away from narrow territorial waters and open access to the oceans, toward national enclosure by means of broader territorial waters and exclusive economic zones protecting fishing and mineral rights. A more recent trend, but one that heavily influenced the latter UNCLOS sessions, has been toward international management of ocean resources. Nations less capable of exploiting ocean resources—Third World and landlocked countries—have pressed for international control as a means of sharing in the ocean's bounty and increasing their own capability to exploit that bounty.

These trends have been viewed with concern, even alarm, by the maritime nations that have prospered under the freedom of the seas regime. Possessing substantial fishing fleets, shipping industries, and investments in offshore oil and gas production, the maritime nations sought to preserve their access to ocean resources and their autonomy in defining national ocean policies. These interests were heightened as the value of ocean resources increased and rapid advances in marine technology increased the availability of ocean resources.

As Tsuneko Akaha well illustrates, Japan had a vital stake in the outcome of the UNCLOS negotiations and in attempting to preserve the principle of open access against the accelerating trend toward national closure of the oceans. Japan is crucially dependent upon free access to the oceans

for fishing, shipping, and energy resources. Widespread recognition in Japan of this dependence did not, however, allow the Japanese Government to easily adapt its policies to the rapid changes in global ocean politics. Indeed, the salience of the issues to Japan's economic survival pushed the Japanese Government into a pattern of defending the open access regime until it became clear that only adaptation to the new international perspectives would preserve Japan's access to the oceans.

Akaha studies Japan's ocean policies from 1958 to 1977, when Japan extended its territorial seas from three to twelve miles and established a 200-mile fishery zone. The focus is predominantly on the fisheries issue in ocean politics for the important reason that this issue towered over all other ocean issues in Japanese politics. Although he does set the evolution of Japanese ocean policies in the international context of the negotiations, his primary interest is in the domestic political forces and the decision-making process that shaped Japan's policies.

In Japan, powerful, vocal political interests and a governmental policy-making process lacking centralized policy coordination combined to inhibit the innovation in ocean policy needed to adapt to the trends in global ocean politics. Policy decisions consisted of incremental adjustments made in response to immediate pressures when none of the previous policies had proved adequate to forestall erosion of Japanese interests. According to Akaha, the nature of

the decisionmaking process itself, as well as political pressures, shaped Japan's ocean policy, precluding comprehensive policy analysis and enhancing the impact of political forces resistant to change. This perspective on the evolution of Japan's ocean policy is well supported by the documentation Akaha provides and goes far toward explaining Japanese behavior in negotiations that threatened a *status quo* Japan seeks to protect.

Akaha's study is well-researched and his major conclusions are reasonable and insightful. This is not, however, a book for the general reader. It will mainly interest the student of Japanese fisheries and ocean policy. For those seriously interested in either the Japanese foreign policy decisionmaking process or the comparative study of national approaches to the law of the sea, this book would be a valuable case study for comparison with other studies. The only significant weakness of Akaha's study is that the decisionmaking process he uncovers in ocean policy is not compared with or set in the context of Japanese decisionmaking in other areas of foreign policy and economic policy. There is a well-developed body of research and theory on Japanese governmental decisionmaking to which this study could have made an important contribution, but which Akaha largely ignores.

Akaha makes few observations on security and defense issues arising from the law of the sea talks, largely because such issues played a minor

role in the evolution of Japanese ocean policy. In discussing the debates in Japan on navigation rights, Akaha does provide insight into Japanese views on the straits transit issue—important for understanding Japan's policy concerning the strategic Tsushima, Tsugaru and La Perouse Straits. Akaha also brings out Japanese perspectives on the application of the "three non-nuclear principles" in Japan's territorial waters, an issue of importance in Japanese-American security relations.

In summary, the scope of Akaha's study of Japanese ocean policy is too narrow for the general reader or the reader primarily interested in Japanese defense policy, but the book is highly recommended for those interested in Japanese ocean politics or Japanese governmental decision-making.

JOSEPH F. BOUCHARD
Lieutenant Commander, U.S. Navy

Westing, Arthur H., ed. *Global Resources & International Conflict*. New York: Oxford University Press, 1986. 280pp. \$29.95

Untold volumes have been written on the causes of war. Most of these books explore the complexities and machinations of international relations and power politics, but few consider the more obvious factors at the heart of a nation's survival. *Global Resources & International Conflict* explores one of the most basic and enduring sources of world instability

and conflict—the scarcity of resources and the competition for their control.

Produced under the auspices of the Stockholm International Peace Research Institute, this book is an outgrowth of a symposium convened with the U.N. Environmental Programme. Through a series of essays written by authorities from the U.S.S.R., Sweden, Norway, Canada, Britain and the United States, it analyzes the significance of oil, minerals, fresh waters, ocean fisheries, food crops and the human population.

The study focuses on the relationship of man to natural resources: his absolute need for them and his frequent dependence on his neighbors for access. The interborder relationships that ensue range from cordial and mutually beneficial to belligerent and subversive, and this study examines those critical dependencies that would most likely lead to conflict.

Although man's requirement and quest for resources represents a well-known and often-discussed theme, supporting data in the study provides fresh insight into the seriousness and complexities of the issues. The statistics, history and ongoing negotiations that are presented in the analysis of each resource are instructive in considering catalytic forces that may lead to conflict. The study clearly conveys the increasing potential for conflict in a world where the demand for scarce resources is growing rapidly due to unmanageable population growth and rapid increases in human aspirations.

The study is generally convincing in its analysis but somewhat disappointing in its conclusion. It yields to the temptation to seek easy answers in the realm of theory and idealism, and fails to grapple with those real-world alternatives essential to a viable solution. The formulation and acceptance of a body of international law is the primary proposal offered to the dilemma of how to eliminate competition over natural resources as a source of international conflict. Although a noble ideal, it ignores the fact that war is traditionally preceded by the violation of laws and treaties. A nation deprived of the resources it perceives to be essential to its survival will not be deterred by mere rhetoric, however binding it may appear to the world at large. Only when that nation can be persuaded that cooperation in the preservation of natural resources is in its national interest will it abide by international law.

For those who seek confirmation through data and analysis that world resource competition sows the seeds of conflict, this study merits review. Of particular value are the appendixes that provide a bibliography, a review of wars and skirmishes involving natural resources and various international treaties.

BETTY J. PRICE
Major, U.S. Air Force

Helm, Ltd., 1985. 394pp. \$37.50

Professor Edwin Lieuwen wrote, in 1960, that "on the general subject of militarism in Latin America no important books have yet appeared." Six years later, Professor Lyle McAlister agreed with him when he wrote in the *Latin American Research Review* that "The Political role of the military [in Latin America] was acknowledged, described and deplored, but its institutional and societal bases were not regarded as worthy of [by scholars] or susceptible to systematic analysis. Under these conditions, it is hardly surprising that no 'important books' appeared."

An important book by Professor George Philip, of the London School of Economics and the University of London's Institute of Latin American Studies has appeared. His first two chapters summarize previous articles, books, and intellectual main currents, reinforcing McAlister's point of two decades before, that North American scholars view the military forces of Latin America as historically invalid institutions which retard the growth of democracy, often with help from the Pentagon. Professor Philip then offers chapters in which he argues compellingly that the military institutions are unique within the region and that specific historical patterns, which he portrays as socioeconomic trends, caused these military institutions to exist and adapt to change. The final section is a country-by-country portrayal of the military institution, written to show the counterpoint between socioeconomic challenge and military insti-

tutional response which is the author's thesis.

The sections on Cuba, Nicaragua, and Panama are brilliant, deriving a subset of institutional variables for the Central American region. The sections on South America focus heavily on Brazil, Argentina, Chile, and Peru. Collectively, they portray the author's "corporatist" model for the South American military forces, in contrast with the "partisan ethic" which he considers determinative in Central America.

Mexico and Colombia are sadly absent. Few statistics are offered on such topics as Latin America's admirably minute history of border wars, protracted wars, and mass mobilizations in comparison with other world regions. The influence of the European military missions and the internal sharing of that influence among the South American countries receive treatment from Professor Philip, but the early Hispanic ethic of the military priesthood, a la Alcántara, Calatrava, and Santiago, is absent.

For American readers the book needs to be retitled *The Military in Latin American Politics*, since Central America and the Caribbean are excluded from the notion of "South America" as Europeans view it. For all students of the Western Hemisphere south of the Rio Grande, the book is required reading—historiography, institutional history, political science, and economics all require it.

Things may have changed in the United States since sociologist Edward B. Glick wrote, in 1971,

"Conventional [U.S.] campus wisdom to the contrary, studying the military . . . does not automatically make you a Dr. Strangelove." The anti-intellectual emotionalism evidenced among U.S. academics on current military events in Central America since 1977 suggests that analytical scholarship on the western shore of the Atlantic significantly trails its counterpart thrust on the east bank. So Professor George Philip's book is also required reading for all U.S. Government officials who deal with foreign policy, and for the general citizenry who care.

In my early days of doctoral study on Latin America, I remember Professor McAlister, that doughty self-proclaimed descendant of Scottish sheepherders, saying, "Some of my colleagues forget that the Latin American countries are entitled to have armies if they want to." Now, from London, comes Professor George Philip, telling both how and why with meticulous facts and sound reasoning.

DR. RUSSELL W. RAMSEY
Albany, Georgia

Alvarez, A. *Offshore: A North Sea Journey*. Boston, Mass.: Houghton Mifflin, 1986. 190pp. \$15.95

Send a poet/*New Yorker* writer to the North Sea oil patch and you expect a diatribe about oil company rapine, oil spills, and the like. Instead, *Offshore: A North Sea Journey*, by A. Alvarez, is full of the fascination men have for large-scale technological marvels—the awe inspired in a five-

year-old's trip to the local fire station.

Alvarez made two trips in 1983 to Britain's Brent field. It is one of several oil development fields just west of the line separating the United Kingdom and Norwegian sectors of the North Sea, north of the Shetland Islands and the 61st parallel. *Offshore* is an impressionistic travelogue *cum* oral history of the development of the fields north of the 61st parallel; the movers and shakers who made and make it happen; and the burly alchemists who risk their lives, and sanity to draw the elixir of the 20th century from the earth's lower cretaceous crust. It is a mostly romantic look—by a romantic for romantics—at what Alvarez calls the North Sea mixture: Dazzling high tech plus a great deal of elbow grease.

Although the first offshore well was spudded 40 years ago off Louisiana, the 61st parallel fields presented unique challenges for the oil industry: deeper water (500 feet), Arctic conditions, and the distance from the fields to logistics bases and pipeline terminals. It was worth the incredible expense and, until recently (layoffs are rife), the North Sea has given the nation, on which the sun had almost set, a new challenge and economic boon.

Fortunately, Alvarez provides only the eyes. He allows the population of these 700,000-ton, 1,000-foot-tall, football field-square, steel island cities to speak for themselves—from the engineers, helicopter pilots, roughnecks, toolpushers, and saturation divers to the land developers and

politicians who provided and profited from the logistics base at Aberdeen, Scotland, and the Shetlands' Sullom Voe pipeline terminal.

They candidly explain why they leave home and family, fly for hours through fog to an artless steel platform battered by some of the worst weather on earth, to work 12 hours a day with loud, dirty, dangerous machinery; and why they return. Money is part of it. Part of it is the alien, even hostile places (Alvarez missed the 100-mph winds and 100-foot seas) that inspire in some men an ineluctable lust for deserts, jungles, anaerobic mountain peaks, and space—the final frontier to which the North Sea development has often been likened. In one memorable chapter on saturation divers, a 23-year-old describes the fears and epiphanies of his four-week stints 500 frigid, outer space-like feet below the earth's surface. Not surprisingly, many if not most of Alvarez's voices are ex-military.

Making one's living on oil rigs is like combat or walking on the moon: it is an ineffable experience and you have to be there. "It was like being let in on some marvelous secret of human ingenuity and audacity." The synthesized voices of Alvarez, the writer and poet, open a window on the Brent field that a Glaswegian roughneck or Dorset helo driver alone cannot. *Offshore* should silence all doubts about sending journalists up in the space shuttle. Make it a poet.

Zumwalt, Elmo, Jr. and Zumwalt, Elmo III. *My Father, My Son*. New York: Macmillan, 1986. 320pp. \$18.95

This book is startling in many respects. Probably because of that, it has received wide publicity in periodicals, newspapers, and the electronic media. For those who missed the coverage, it is briefly recapped here.

Admiral Elmo Zumwalt, Jr., as commander of naval forces in Vietnam (1968-1970), ordered the defoliation of river banks to reduce the dangers of ambush to U.S. Navy boat crews. His son, Lieutenant Elmo Zumwalt III, was skipper of one of them (1969-1970) in areas where Agent Orange was sprayed from aircraft. Some batches of Agent Orange were contaminated with dioxin. Elmo describes bathing in the contaminated rivers, eating local produce, wearing contaminated clothing for days at a time, while being unaware of any danger. A dozen years later, Elmo developed two forms of cancer—Hodgkins disease and lymphoma—both usually terminal. Meanwhile, Elmo's son, Russell, was found to have a serious learning disability. Both Zumwalts are convinced that the illnesses are the result of the Agent Orange. The U.S. Government claims there is insufficient evidence to substantiate the link.

Both Admiral and son stoically acknowledge that the defoliation was needed to save American lives. Elmo speculates that Agent Orange may have saved his life at the time, only to

take it from him later. (He quotes a fellow sufferer: "I got killed in Vietnam; I just didn't know it at the time.") The Admiral grimly states that even if he knew then what he knows now, he would still have ordered the defoliation. But he sees himself, ironically, as an instrument in his son's tragedy, which preoccupies him day and night.

Elmo III has undergone extensive treatment, including bone marrow transplant, and is still alive. The book closes on a note of hope.

Besides being startling, the book is easy to read, fast moving and has something for everyone. Award winning journalist, John Pekkanen, who collaborated with the Zumwalts on this book, also deserves much credit for the style and organization. In places it reads like a Harlequin romance with candlelight weddings in Shanghai and college love. In other places it reads like an Edward R. Murrow war report. There is a hair-raising account of Elmo's rule-breaking ambush incursion into Cambodia which influenced the Admiral to make changes in the conduct of the war. The way Elmo led his boat crew is classic and the examples cited would be useful in naval leadership training.

In still other passages, the book is like *Family* magazine, describing an obviously close family addicted to laughing, loving, and practical jokes. There is agony: some 50 pages of chemotherapy, bone marrow transplant, planning for death, and even the emotional letters of the dying.

There are some other very curious aspects of this book. It dwells on Elmo III's nightmare of a childhood: polio, heart disease, ruptured appendix, bicycle-auto accident, bronchial attacks, undersized stature, headaches, tiredness, allergies, "born old," and according to a fifth grade teacher, a "moron"; his two grandmothers died of cancer. All of this makes an important point. It portrays a survivor, a man with the stamina, courage, and inner strength to overcome all obstacles, to become a war hero and a successful lawyer, and to survive at least four years of cancer. There are some delightful vignettes, with spicy sarcasm, of famous personalities such as Nixon, Kissinger, Laird, Chafee, Nitze, and Abrams, among several others. Some of the anti-Nixon, anti-Kissinger, and anti-Moorer themes of *On Watch* are reprised.

The brunt of personal venom is directed at Admiral Thomas Moorer. In one passage, Admiral Zumwalt states that Vietnam had been a dumping ground for weak commanders and captains as a result of deliberate decisions made by Admiral Moorer. I arrived in Vietnam during Tet 1968, several months before Zumwalt arrived. True, I met some appallingly incompetent and corrupt officers, but I also saw top-notch replacements coming in. Admiral Moorer had made some personnel policy changes at least as early as 1967 to upgrade the "second-rate" Navy of Vietnam. Admiral Zumwalt himself is the best evidence of that policy change, but he writes that Moorer sent him to Vietnam to get

rid of him: "Promote the son of a bitch and nobody will ever hear from him again."

This is but one example of bitterness that surfaces in this book. The book is hard on the Navy and Navy life. There are references to racism, sexism, and clumsy bureaucracy. It matter-of-factly uses words such as "incestuous," "sexually promiscuous," "unacademic," and "snobbish" in describing Navy communities. It mentions mistakes by Navy medicine and naval intelligence. It speaks of the hard life at sea, midwatches and storms. Little bombs are dropped here and there: low pay, barroom brawl behavior, family separations, the endless "jumping around" of moving, and the difficulties of readjusting each time. But the book does not cover the other side of the ledger—the great strides taken forward; the good, happy, and rewarding side of Navy life. This I consider curious because I have personally heard Admiral Zumwalt speak of these in fond and glowing terms at other times and places. Except for the accounts of courage, loyalty and dedication in battle, this book is definitely not pro-Navy.

In my opinion, Admiral Zumwalt is not as bitter about the Navy as this book suggests. Nor do I believe the book is bitter by design; it just unfolds that way. There is ample reason for it, considering the timing of the writing, coinciding as it does with the monumental Zumwalt family tragedy.

If Father and Son wish to state one message above all others, I interpret

it as this: The jury is still out on Agent Orange; Agent Orange can cause cancer and birth defects; the lay evidence on Agent Orange, from the Vietnam veterans themselves, is ahead of the scientific evidence.

I hope we will see more from the pen of this prolific former CNO.

There is still a lot more we can learn from his experience. Meanwhile, I believe there are many Navy and non-Navy people who would join me in wishing well for the Zumwalt family in this dark hour.

S.A. SWARZTRAUBER
Rear Admiral, U.S. Navy (Ret.)

RECENT BOOKS

Selected Accessions of the Naval War College Library

Annotated by

Christine Babcock, Lynda Bronaugh and George Scheck

Baynham, Simon, ed. *Military Power and Politics in Black Africa*. New York: St. Martin's Press, 1986. 333pp. \$32.50

Military power plays a major political role in most African countries south of the Sahara. This compilation of essays by a group of highly respected subject specialists provides a broad overview of the politico-military situation in this region since the 1960s. The editor has designed the collection to include a variety of themes such as local intervention and disengagement, civilian and military institutional relations, and foreign intervention and assistance.

Bowman, William et al., eds. *The All-Volunteer Force after a Decade: Retrospect and Prospect*. Washington, D.C.: Pergamon-Brassey's, 1986. 352pp. \$32.50

The issue of conscription vs. the volunteer force in manning the U.S. military is discussed in depth by a group of distinguished administration officials spanning the years from Nixon to Reagan, as well as civilian and military authorities on the subject. This collection of essays on recent American military manpower issues describes the current status of the all-volunteer force and predicts its future potential. The book itself is an outgrowth of a conference held at the U.S. Naval Academy, 2-4 November 1983, ten years after the end of the draft.

Breuer, William. *Devil Boats: The PT War Against Japan*. Novato, Calif.: Presidio Press, 1987. 299pp. \$16.95

An anecdotal history of the PT war in the Pacific. Forward by Rear Admiral John D. Bulkeley, *Devil Boats* highlights actions from the U.S. forces being driven out of the Philippines to their return, including Bulkeley's removal of MacArthur and the "kidnapping" of President Quezon. An epilogue provides some interesting commentary on the more famous PT skippers—John Kennedy, Howard Baker, Robert

Montgomery, "Whizzer" White, Paul Fay to name a few—and of the post-World War II association, PT Boats, Inc. Its brainchild, "Boats" Newberry sailed his last patrol in January 1985.

Brzoska, Michael and Ohlson, Thomas, eds. *Arms Production in the Third World*. Philadelphia: Taylor & Francis for Stockholm International Peace Research Institute, 1986. 391pp. \$45

The development of military industries in Third World countries is a facet of the international arms trade that has not been studied as extensively as the flow of weapons from the major powers. The two researchers who head the arms trade team at SIPRI have collected and edited this material which provides factual information about which developing countries are producing which weapons for export and discusses many of the implications of these developments. In addition to essays by various authorities about particular countries, there are biographical sketches of the contributors; a list of useful acronyms, abbreviations, and conventions; many useful tables and figures; and a selective bibliography.

Hadley, Arthur T. *The Straw Giant: Triumph and Failure: America's Armed Forces*. New York: Random House, 1986. 314pp. \$19.95

This book is a report by a leading military journalist on the state of U.S. military forces and the defense system. It spans the time period from World War II to the hostage rescue mission in Iran. The author examines the flaws in the Joint Chiefs of Staff concept and discusses various reform attempts from the "Admirals Revolt" of 1949 to current proposals. Included are examples of overcontrol, self-interest, and inter-intraservice rivalries that contribute to the problems with our present defense system. There are also historical and personal sidelights that offer fresh insights into our present military ills.

Johnson, R.W. *Shoot-Down: Flight 007 and the American Connection*. New York: Viking Press, 1986. 335pp. \$18.95

Two hundred and sixty-nine people lost their lives when the Soviets shot down Korean Airlines Flight 007 as it flew without authorization over Soviet airspace. The United States was able to win easily the ensuing war of words between the two superpowers; however, the author believes that there was a gross manipulation of facts by the Reagan administration. Four theories have been put forward: that Flight 007 strayed off course by accident; that the pilot was using a shortcut to save fuel; that the Soviets deliberately attempted to lure the plane off course; and that the plane was on a surveillance mission. Johnson examines each theory and concludes that the credibility of the Reagan administration must be questioned in regard to its handling of this incident.

Krasilshchik, S., ed. *World War II: Dispatches from the Soviet Front*. New York: Sphinx Press, 1985. 372pp. \$29.95

The Sovinformburo was created by the Party Central Committee within days after the German assault on the Soviet Union in 1941. Its purpose was to report to the Soviet and foreign media on international and domestic affairs with particular attention to the military actions along the Soviet front. This book is a collection of

dispatches by the talented writers and journalists of this committee. Written with passion and a stark sense of realism, the reports convey the heroism of the Red Army and the determination of the Soviet people as depicted by these Soviet writers during the "Great Patriotic War."

Mastny, Vojtech. *Helsinki, Human Rights, and European Security: Analysis and Documentation*. Durham, N.C.: Duke University Press, 1986. 389pp. \$49.50

The significance of the Conference on Security and Cooperation in Europe (CSCE), also known as the Helsinki Conference, has been better understood and appreciated in Europe than in the United States. This comprehensive history of the conference, targeted for an American audience, is based on the full set of dispatches filed by correspondents of Radio Free Europe/Radio Liberty, the only news organization that has been represented at all CSCE meetings. The organization of the book is chronological, the appendixes include a list of CSCE meetings from 1977-1985, and the text of important documents. An index provides further access.

Mayers, David A. *Cracking the Monolith: U.S. Policy against the Sino-Soviet Alliance, 1949-1955*. Baton Rouge: Louisiana State University Press, 1986. 176pp. \$25

Using documentation from the National Archives and the presidential libraries, Mayers traces U.S. foreign policy efforts during the 1950s in response to the Sino-Soviet alliance. According to the author, Washington engaged in some classical diplomatic maneuvers to divide its enemy, such as wooing the weaker Chinese away from the Soviets and also pressuring the alliance to create discontent. Although these maneuvers were somewhat successful, Mayers maintains that domestic factors prohibited both the Truman and Eisenhower administrations from implementing a stronger and probably more effective foreign policy.

Miller, Richard L. *Under the Cloud: the Decades of Nuclear Testing*. New York: Free Press, 1986. 547pp. \$24.95

Between 1951 and 1963 there were over one hundred above-ground nuclear tests in the Nevada desert, and each test produced clouds which left a trail of fallout as they tracked east across the continent. This book is a history of those two decades and the tests that became such an integral part of our culture. Charts list cities and towns affected by radio-activity, while maps trace the course of fallout across the country. Social and political background of the tests and Soviet attempts to develop their own nuclear capabilities are included in the discussion.

Nalty, Bernard C. *Strength for the Fight*. New York: Free Press, 1986. 424pp. \$22.50
This is a survey of the black experience in the military over the past three hundred and fifty years of American history. It chronicles the struggle against the racism that was institutionalized in the military as well as in civilian society. Included are accounts of the black soldiers who served on the Western Frontier as well as the segregated black volunteers who fought in Cuba and the Philippines. The author concludes with a discussion of the present-day military, manned solely by volunteers and largely insulated from American society.

Hattendorf, John B. and Hattendorf, Lynn C. *A Bibliography of the Works of Alfred Thayer Mahan*. Newport, R.I.: Naval War College Press, 1986. 116pp. \$6

A comprehensive listing of all of Mahan's identifiable published writings, including editions of all books, translations, articles, and pamphlets. Illustrated with material from the unusual collection of Mahan imprints in the Eccles Library, Naval War College. This bibliography has been compiled by John B. Hattendorf, the Ernest J. King Professor of Maritime History at the Naval War College and his sister-in-law, Lynn C. Hattendorf, a reference librarian at the University of Illinois at Chicago.

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